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VOL. XLVI. JULY—DECEMBER, 1862

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THE

RETROSPECT OF MEDICINE:

BEING

A HALF-YEARLY JOURNAL,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

W. BRAITHWAITE, M.D.,

LATE LECTURER ON MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN AT THE LEEDS SCHOOL OF MEDICINE, ETC.

AND

JAMES BRAITHWAITE, M.D., Lond.

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WE find that we were mistaken in our last Volume (45), page 33, when we said that Dr. McWilliam was the author of a paper on "Sarracenia Purpurea," or Pitcher Plant, as a remedy for Small-Pox. The real author of this paper was Mr. H. Chalmers Miles, Assistant Surgeon, Royal Artillery, now stationed at Montreal, Canada.

The Series of this Retrospect has now become so large, that it is necessary to consult the wishes of new subscribers who do not like to place on their book-shelves their sets of the Retrospect *beginning* with Vol. 46. For this reason any new subscriber can have the work without the number of the volume marked on it, only with the distinctive mark "July—Dec., 1862."

In many parts of the country there may be practitioners who do not care to take in the larger work, not simply on account of the expense, but the time which it would occupy to read it, yet who would be glad to see what improvements have been suggested in Midwifery and the Diseases of Women. For this reason, we regularly re-publish in a separate Pamphlet, the "Commentary on Midwifery and the Diseases of Women and Children," price 2s. 6d.

A few complete sets of the Retrospect up to Vol. 40 may still be had, price £5.

Our General Index will in future include six volumes instead of four, and will be printed in the next Retrospect, Vol. 47.

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AFFECTIONS OF THE SYSTEM GENERALLY.

ACUTE RHEUMATISM.—Remove all sheets and let the body be carefully wrapped in blankets, which must be so arranged as to shut off all accidental draughts from the head. The blankets should be new and fluffy. The affected joints must be wrapped up in flannels soaked in a hot decoction of poppy heads, with half an ounce of carbonate of soda to each pint. If the skin is red, hot, and painful, and the symptoms metastatic and increased by motion, use the alkaline treatment pure and simple. If the pain is felt more in the bones, and is intensified rather by pressure than by motion, add two grains of iodide of potassium to each dose of alkali. Give opium as a palliative, in exact proportion to the degree of subjective sensation of pain; nothing relieves the pain so well as pure opium. If the pain remains fixed in one joint, apply leeches, and afterwards a poultice. If they can be procured, it is well to mix young laurel leaves with the poultice. The same treatment must be applied to the cardiac region if the heart has become inflamed. If the patients have been robust hearty people they must have very simple diet; if they have been ill-nourished, by reason of either ill health or poverty, beef-tea or broth should be given. It is impossible to exaggerate the importance of extreme repose, and an even high temperature to the skin in rheumatic fever. Next to jumping and running, there is nothing gives the heart so much work to do as change of temperature. (Dr. T. K. Chambers, p. 21.)

AGUE.—*Subcutaneous Injection of Quinine.*—Dr. Chasseaud finds from a great number of experiments, that one or two grains of quinine in solution injected into the cellular tissue of the arm, are equally, if not more efficient in arresting fever than the large doses hitherto found necessary. This method is also free from the unpleasant symptoms sometimes produced when a large dose of quinine is taken by the mouth. Make

a saturated solution of quina in alcohol, and of this, inject as much as is equivalent to two grains, under the skin of the arm, avoiding the large veins. One curious effect produced, is that the patients generally fall into a quiet sleep for some hours. The great expense of sulphate of quinine, apart from the merits of the discovery itself, render this of great importance. (Dr. J. M'Craith, p. 307.)

Cancerous Growths.—From excision of a cancerous growth, according to Mr. Paget's statistics, there is a mortality of 10 per cent., and according to M. Lebert, of 16 per cent. Removal by caustic is far less dangerous, and what danger there is arises from the exhausting pain But by the application of intense cold, the pain and inflammation resulting from the application of strong caustics may be entirely prevented. Congelation used for this purpose must be produced by the strongest frigorifics, and in order that it may extend to a sufficient depth, must be employed simultaneously with pressure. This can be done by filling, with the semi-fluid freezing mixture, a very deep gutta-percha cup modelled to the part. (Dr. Arnott, p. 386.)

Gout.—*Winter Cherry.*—The winter cherry, Physalis Alkakengi, is a perennial herbaceous plant, commonly cultivated in this country on account of its red berries, which are about the size of a cherry, and contain numerous flat kidney-shaped seeds. The berry has a bitter taste, and contains an active principle designated *physalin.* Its employment in medicine has lately been revived by a French author. He states that it is a remedy for gout, more efficacious than colchicum, whilst it is devoid of the objectionable properties of the latter. He prepares what he calls alkakengine in the following manner:—He takes the flowers, calyx, and unripe berries, carefully dries them, and reduces them to fine powder. This he makes into a moist paste with water, adds a little slaked lime in fine powder, and treats the mass with boiling alcohol; he filters and distils off the alcohol, and the residue is his alkakengine. To administer this he mixes it with an equal portion of solution of silicate of soda, and forms it into pills with powder of the *Teucrium chamædrys* (germander). Of these pills he gives five or six during the day in an overt attack of gout, and two or three for slighter symptoms, increasing or diminishing the number according to the effects observed. He prescribes at the same time an aperient, consisting of extract of colocynth and extract of cinchona bark. It may be observed that the germander had a reputation for relieving gout before colchicum was introduced. It was one of the ingredients of the celebrated Portland powder. (Editor of Lancet, p. 302.)

Veratrum Viride.—A fit of gout in strong and plethoric patients is more speedily relieved by the veratrum viride than by colchicum. Begin with two minims every two hours Tilden's (of N.Y.) concentrated tincture, and gradually increase the dose with care. (Editor of Lancet, p. 287.)

Rheumatic Effusions.—*Faradisation.*—Absorption of rheumatic effusions may be readily induced by Faradisation, especially if they are seated in the skin. In the case of the face, moist conductors should however only be employed. In rheumatism of the deltoid, and of the muscles of the hand, it cannot be replaced by any other remedy. In rheumatic effusions in the joints use moist conductors, and continue the operation somewhat longer than Faradisation of the skin. If muscular contractions are at the same time present, Faradisa- of the skin, and of the antagonists of the contracted muscles, proves of great benefit. (Dr. J. Althaus, p. 23.)

Typh Fevers.—Typhus and typhoid fevers are but different types of the same disease, that is, arising from one common cause. No uniform plan can be adopted in treating fever, each single instance must be treated by itself, and symptoms must be met as they arise. Provided it be seen early the typhoid type is, of the many forms of fever, the one most amenable to treatment. When required by the severity of the local symptoms, never hesitate to have leeches applied over the right iliac region, and, in some cases, a blister over the same part is very useful, and is often followed by the best results. In the diarrhœa of typhoid fever the best remedy is the dilute sulphuric acid, in the proportion of one to three drachms to the eight-ounce mixture. Such medicines as chalk, gallic acid, lead and opium are often unavailingly used. The rule should be to gradually lessen the diarrhœa if too severe, never suddenly to stop it. In mild cases use the acid infusion of roses, and, when there is pain, from two to six drops of laudanum in each dose of the mixture, commonly answers well. When there are signs of irritation in the colon, and more especially when there is tenesmus, an anodyne enema acts like a charm. The use of salines or alkalies in any diseases of a lowering type is to be avoided. Even carbonate of ammonia is too indiscriminately used. A very few doses of it will frequently bring on diarrhœa. Perhaps stimulants as a class are too indiscriminately used—brandy, wine, and beef-tea are constantly spoken of as being given to the same patient. Judgment must be exercised, for the effects are not the same. Thus wine may be given with much less risk than beef-tea. (Dr. H. Kennedy, p. 1.)

Typhoid and Scarlet Fever.—Chlorine and Milk.—From the very commencement of a fever there is a very great loathing of all kinds of nourishment; the bare suggestion of food creates a shudder. Yet milk will always be found grateful. It is the most unirritating and digestible food possible. Dr. Thielman writes that "he had never seen delirium occur during the progress of any fever under the influence of a full diet of milk, as after broth." If the stomach will bear it gruel may be given, made as thick as good cream, and with two-thirds milk. After the first two or three days of antiphlogistic treatment, the internal and external use of chloroform and chlorine is most beneficial. Let the chloroform be given in small doses at first, and increased; after each dose a great calmness and inclination to sleep is produced, unattended with any adverse cerebral symptoms. The chlorine may be administered internally either as chlorate of potash or very dilute hydrochloric acid. Chlorine, thus given, at once destroys the putrid effluvia thrown off from the various secretory surfaces of the body, so injurious both to the patient and his attendants. The body may be sponged twice a-day with tepid chlorinated water. Change of linen and of bed, where two beds can be placed in the same room, will contribute greatly to the general welfare and convalescence of the patient. Wines, all soup, and jellies, should be deferred until the termination of the febrile symptoms. (Mr. C. T. Edwards, p. 15.)

Chlorine and Chlorine Acids. Nitric and Nitrous Acids.—There is a remarkable difference between the action of the chlorine acids and nitric and nitrous acids in scarlatina. The former appears to exercise a direct action upon the morbid poison, while the latter possess no therapeutical effects. The chlorine acids are to the morbid poison of scarlatina what the nitric and nitrous acids are to typhoid fever. These oxygen acids have proved the most valuable therapeutic agents in typhoid fever. These two sets of acids take precedence of ammonia as therapeutic agents. The mineral acids are, however, quite contraindicated when cerebral symptoms are present. The acids must not be combined with other remedial agents which tend to mask their action, but a few drops of ipecacuanha wine and syrup of poppies may be added to nitric acid, or to the hydrochloric, should bronchial or pulmonary complications require; and where tonic treatment is necessary, they may be combined with bark or quinine. If nitric acid has been given in excess, the tongue becomes very red, and the use of the remedy must be desisted from. The rapidity with which nitric acid clears away the dusky hue, and brightens the countenance, by decomposing the morbid poison of the blood, is very remarkable

in cases of typhoid fever. This dusky hue does not depend upon feeble action of the heart, for ammonia is found often to increase the mischief, probably from its having an affinity for the morbid matter contained in the blood. (Dr. H. Osborn, p. 19.)

Zymotic Diseases.—Let that be admitted, of which there can be little question, that zymotic diseases depend on the presence and action of specific ferments in the blood, the question arises, is it possible to neutralize them. (Claude Bernard has established the fact that fermentation may arise in the blood and give rise to poisonous principles which may in their turn produce certain grave accidents in the living frame.) We possess in sulphurous acid, when combined with salifiable bases a means of controlling and neutralizing morbid ferments in the blood of living animals, without in any way vitiating its qualities, so as to render it in any way incapable of maintaining life. Not only sulphurous acid, but also its combinations with earths and alkalies, such as the sulphites of soda, potash, magnesia, and lime, possess in a supreme degree the power of arresting all known organic fermentations, and putrefactive metamorphoses of animal solids and liquids. It never acts as a poison on the living organism as do many other substances well known for their antiseptic properties. (Dr. G. Polli, p. 8.)

AFFECTIONS OF THE NERVOUS SYSTEM.

Apoplexy.—*Position.*—When the patient is supine and the mouth wide open, the tongue falls back into the pharynx by gravitation, and impedes the respiration to such an extent, that the jugulars and other vessels of the head and neck become greatly distended, and the state of the patient becomes rapidly worse. If, however, the tongue be hooked forward with the finger, or, better still, if the patient be turned on the side, so that the tongue may fall away from the back of the pharynx, the stertor gradually ceases, the mucus drains away from the air-tubes, the congestion of the face and head disappears, and sensation will partially or wholly return; and if there be not too much destruction of a vital organ, recovery will take place. (Mr. R. L. Bowles, p. 25.)

Delirium Tremens.—The following is Dr. Laycock's rational plan of treating delirium tremens without the use of opiates. Let the patient be put to bed, his hands and face washed, and let the room be kept cool and sweet. No mechanical restraint must be attempted, but the patient governed by a calm, gentle, yet firm and positive manner. Food should be administered

in a concentrated form, in small quantities, every two or three hours. If the breath smells of drink, await the elimination of the poison, unless there be reason to suspect an overdose, when a gentle emetic may be prescribed, and the stomach emptied. When food has not been taken for several days, and the hallucinations are of a frightful or distressing kind, and especially when the pulse is very quick and feeble, the first sound of the heart heard indistinctly, the tongue coated, œdematous, and flat or indented at the edges, wine and brandy may be administered medicinally with advantage. (Dr. T. Laycock, p. 355.)

A curious case is related in which delirium tremens did *not* result from drink, but from great mental excitement. Forty drops of laudanum with fifteen drops of chloroform, induced sleep within half an hour of administration. This combination is one of much value in the treatment of delirium tremens. (Mr. A. Murphy, R.N., p. 37.)

Lead Paralysis.—A patient had completely lost the use of his hands and arms, which were thin and of a purple colour, and muscles much atrophied. He was ordered to wear a galvanic chain round the arms, from the elbow to the wrist (direct current). Three times a week to have a powerful continuous current passed through the arms, a dry metallic conductor attached to the negative pole, passing over the skin covering the atrophied muscles. By degrees faint contractions might be discovered under the skin, and the arms began to increase in size. Three months after commencing the treatment he had quite recovered. (Mr. H. Lobb, p. 316.)

Neuralgia.—*Excision of a portion of Nerve.*—In excising a portion of nerve for severe and otherwise incurable neuralgia always remove as much as possible, at any rate more than a quarter of an inch, since the experiments of Hjelt have shown conclusively that that length of nerve is easily regenerated, and sensibility returns in the part in about eight weeks. (Mr. J. W. Hulke, p. 27.)

Rheumatic Paralysis.—Galvanism, when scientifically applied, has immense power in curing rheumatic paralysis. I have never yet met with a case which has not completely and rapidly yielded to galvanism; the current restores the circulation to the part where previously there had been pallor and cold. The best plan is always first to excite the skin with a sharp current, using a dry flat metallic conductor. The positive pole of a 120-element galvanic battery is applied, by means of a wet sponge, upon the skin at the bend of the arm, and the flat metallic conductor is passed sharply over the skin

of the arm, front and back for five minutes, producing redness of the surface, with sharp stinging pain. The conductor should now be changed to a moist one, and each muscle be stimulated to contraction. (Mr. H. Lobb, p. 312.)

Tetanus and Strychnine Poisoning.—*Nicotine.*—In cases of tetanus, nicotine causes: 1. Immediate relaxation of the muscles of expression, of respiration, and of deglutition. 2. Cessation of delirium. 3. A very marked lowering of the pulse—in one case from 130 to 88 per minute (this is not always the case, as in one out of the four cases in which it was tried the pulse rose ten beats per minute). 4. In some cases it causes profuse sweating. 5. It has a tendency to produce deep sleep. The nicotine should be kept in solution so that one drop may contain three-fifths of a grain, which is the proper dose to commence with. If an infusion of tobacco is used pour a pint of boiling water on an ounce of cut Cavendish, heat over the fire and strain, and let this be given gradually. In severe cases of poisoning by strychnine, half the above pint of infusion may be taken at one draught, and repeated at once if vomited. It is better to use nicotine, however, as the dose may be regulated with any degree of precision, whereas the strength of an infusion of tobacco is entirely unknown. (The Rev. S. Haughton, p. 257.)

Traumatic Tetanus.—Chloroform and Aconite.—A severe case lately at St. Mary's Hospital was kept for 24 consecutive hours under the influence of chloroform, and with the best results. Afterwards five minim doses of tincture of aconite were given, and under this treatment the spasms became less and less severe. (Mr. W. Coulson, p. 264.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

Aneurism.—*Ligature of Artery: Where to tie the Vessel.*—The doctrine usually taught is, that the artery is not in a condition suitable for the ligature, so far as the aneurismal sac extends. This is incorrect, for the artery, if unsound at the seat of the aneurism, is just as likely to be unsound at parts at a distance. And, on the other hand, the formation of a sac, so far from proving injurious to the artery, must rather tend to strengthen and support it, by consolidating the textures in its neighbourhood. The state of the case is this, that in popliteal aneurism the Hunterian practice must still continue to be that pursued; but in cases of carotid, axillary, gluteal, and iliac aneurism, that practice need not be exclusively the rule, and indeed, if any operation is to be performed,

it is impossible to follow it : the artery *must* be tied close to the aneurism, or the ligature may even have to be put on the dilated portion of the artery. (Prof. Syme, p. 93.)

Popliteal Aneurism.—Pressure.—In applying pressure for the cure of popliteal aneurism, we ought to use no degree of pressure beyond what would be found sufficient, not all at once, but gradually to reduce the stream of blood in the vessel to be acted upon, and this so as not to produce pain. Secondly, to apply the pressure on two or more points in the line of artery, instead of always in the same place. It will be found that the best position for the patient is a half-sitting one, the thigh flexed on the body, and the leg horizontal. By this means the force of the blood stream flowing into the tumour is reduced, while its return by the veins is, by the same circumstance, greatly facilitated. (Dr. Bland, p. 95.)

Rheumatic Pericarditis.—Out of a total of 48 patients treated with the full alkaline treatment, only one instance of cardiac complication occurred. The average number of days in hospital when this treatment is adopted is about 25, being smaller than by any other plan. 113 cases, where other remedies were used, gave 35 instances of cardiac mischief. Nitre, next to alkalies, is most successful. Out of 21 cases treated by opium, 14, or exactly two-thirds, manifested while under treatment symptoms of valvular or pericardial inflammation. Colchicum invariably retards the recovery of the patient. (Dr. W. H. Dickinson, p. 46.)

Mercury.—I have again and again had the satisfaction of observing the disappearance of every physical symptom, as soon as the mercurial action became manifested on the gums. Two circumstances require attention :—1. It must be employed at the earliest period of the disease; and 2, The patient must be brought under its influence as rapidly as possible, otherwise the organization of the effusion prevents its absorption by the absorbents. A good plan is to order a drachm of strong mercurial ointment to be made into a suppository, in order to secure its retention. The gums will often become tender within twenty-four hours. If mercury is inadmissible, iodide of potassium given so as to produce a rapid and decided effect is the next best remedy. (Dr. J. Bell, p. 43.)

Varicose Veins.—*Occlusion of.*—Put a strip of wet bandage around the limb, above the space where the veins are to be operated on. This causes distension of the veins, so that they are easily perceived, and their outline defined. The safety needle in common use for ladies' shawls is well known. Let the operator have a few of these, but differing from them

in the wire of the unpointed arm being twisted upon itself in the form of a small drum, and covered with chamois leather. Pass the pointed arm under the vein and out again through the skin, then fix the two arms together in the way usually done. Three, four, or more may be inserted at a time, and withdrawn in about eight days. But little irritation will be caused and occlusion will be found to have followed. (Dr. J. Morton, p. 97.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

Croup.—*Veratrum Viride.*—It is probable that veratrum viride will prove a substantial addition to our means of controlling inflammatory disease. It acts clearly as a depressor of the circulation. Given in croup it causes sickness, less frequent pulse, and general relief to the symptoms. Two minims of the tincture should be given every hour. (Dr. C. Handfield Jones, p. 285.)

Pleurisy.—Blisters at the commencement of pleurisy invariably protract the duration of the inflammation, and make it more severe. The property of cantharides is to cause and augment that very fibrinous state from which the membrane is already suffering. Exposure to cold, and to changes of temperature by baths and the like, makes it worse, as do strained postures of the body and exercise. Opiates also cover up the evil with an anæsthetic mask, and prevent the patient knowing how he really is. Mercury, again, is an unnecessary call upon the whole system to make destructive sacrifices for the sake of a very small and not important member. Purgatives do no good, and expose the patient to catch cold at the water-closet. On the other hand, the application of six to twelve leeches gives immediate relief. After these come off, apply a very large poultice, and continue the use of poultices for several days. Take care not to follow the application of invigorating warmth by the depressing influence of cold. The poultice must be kept on hot until all pain is gone, and the breath can be drawn quite freely and easily. (Dr. T. K. Chambers, p. 71.)

Pleuritic Effusions.—*Thoracentesis.*—Thoracentesis is now properly employed as a means of cure in various cases of pleuritic effusion, after antiphlogistics, mercurials, iodine, diuretics, &c., have failed to effect the absorption of the fluid, and when further delay would only tend to organize pathological products. The spontaneous cure of pyothorax takes place by the discharge of the matter either through a bronchus, or externally through an intercostal space; atmospheric air has

free access to the sac of the abscess; gradually the suppurative action lessens as the cavity contracts, and, if the strength of the patient be equal to the effort, a cure is effected. To pure empyema, the surgical principle, to which there are few exceptions in acute or subacute suppurations, should be applied, that of discharging the abscess by a free opening. When spontaneous openings occur, they are always found anteriorly and high up. We must imitate this, for if we open the chest in a depending position, and afterwards putrefactive changes take place, the septic gases floating above the other contents have no exit, are absorbed by the lining membrane of the cavity, excite inflammation of the latter, contaminate the blood, and produce typhoid symptoms. The best place will generally be between the fourth and fifth ribs, anteriorly, We must provide, if necessary, for the constant drainage of the abscess by the introduction of a Chassaignac's tube. It may be necessary, in certain cases, to make a counter opening inferiorly. In cases, however, of hydrothorax, or sero-albuminous, sero-sanguineous, and passive collections in the pleural sac, our operative proceedings should be guided by very different principles. We should endeavour to avoid all causes of irritation. The fluid ought only in the first instance to be partially withdrawn, the remainder may be absorbed into the system; if not, tapping may be repeated. Valvular perforation of the integuments, and the employment of a vulcanized India-rubber bag and stop-cock, or the ingenious trocar and canula of Mr. Charles Thompson, will effectually prevent the entrance of atmospheric air. (Dr. H. Thorp, p. 65.)

Pneumonia.—Acute pneumonia was formerly treated by so-called antiphlogistics, that is to say, bloodletting, purgatives, antimonials, low diet, and other methods of lowering the strength of the patient. Many years since I began to doubt the propriety of this plan. For the cause of the inflammation is an irritation of the textures, of the ultimate molecules of the part, in consequence of which their vital power of selection is destroyed, and that of their attraction is increased. The removal of blood by venesection cannot alter this state of matters, neither can other lowering measures. Local bleeding may relieve superficial congestion, but if exudation have taken place it cannot remove that. Exudation can only be absorbed by undergoing cell-transformation. This demands vital force or strength, and is arrested by weakness. Inflammations in healthy men rapidly go through their natural course; in weak persons, they are delayed or arrested, hence their fatality. The strong pulse, fever, and increased flow of blood in the neighbourhood of inflamed parts, are the results

and not the causes of inflammation, and show that the economy is actively at work repairing the injury. So far, therefore, from being interfered with and interrupted, they should be supported by nutrients. The following is the best course to be pursued. Direct your practice to support the strength, and never to weaken it in any stage by antiphlogistics; although if dyspnœa be urgent, cupping, or a small bleeding may be practised as a palliative, more especially in bronchial or cardiac complications. During the febrile excitement administer mild salines. On the fourth or fifth day, when the pain has abated, administer good beef-tea, and nutrients; and, on the pulse becoming soft and weak, from four to eight ounces of wine daily. As the period of crisis approaches, slight diuretics may be given to favour the excretory process. Simple pneumonia, treated so as to support instead of lowering the nutritive processes, so far from being a fatal disease invariably recovers. The same rule applies to all inflammations, the amount of danger being in direct ratio to the weakness of the system. (Dr. J. Hughes Bennett, p. 48.)

In bloodletting you are wielding a dangerous, but in some cases a necessary weapon. When it should be employed and when not, is one of the most important questions in clinical medicine. We must judge of the necessity for this treatment by the balance between the heart and the arteries. If the apex of the heart strikes strong, while the pulse at the wrist is defective, act freely and confidently. If, on the contrary, the ventricles are weak while the pulse is full, large, and rapping, be cautious what you do, and if you draw blood at all, let it be by cupping the chest. Remember that the pathology of the disease is a temporary death of a portion of the lungs, and that the action of bloodletting is purely mechanical. Position is of great importance. When the elasticity of the vessels is lowered by disease, the blood gravitates towards the lowest part of the viscus. Let the patient, therefore, lie on the side opposite to that affected, that thus gravitation may tend to withdraw the congestion from the weaker point. If both lungs are affected posteriorly, the patient may lie on the face for a time. Never give purgatives in pneumonia. A patient with constipated bowels will do better than one with the opposite state. (Dr. T. K. Chambers, p. 52.)

Suspended Animation.—The following is the plan of treatment recommended by the Committee of the Royal Medical and Chirurgical Society, in cases of suspended animation:—That all obstruction to the passage of air to and from the lungs be at once, so far as is practicable, removed; that the mouth and

nostrils, for example, be cleansed from all foreign matters or adhering mucus. That in the absence of natural respiration, artificial respiration by Dr. Silvester's plan be forthwith employed in the following manner: The body being laid on its back (either on a flat surface, or better, on a plane inclined a little from the feet upwards), a firm cushion or some similar support should be placed under the shoulders, the head being kept on a line with the trunk. The tongue should be drawn forward so as to project a little from the side of the mouth. Then the arms should be drawn upwards until they nearly meet above the head (the operator grasping them just above the elbows), and then at once lowered and replaced at the side. This should be immediately followed by moderate pressure with both hands upon the lower part of the sternum. This process is to be repeated twelve or fourteen times in the minute. That if no natural respiratory efforts supervene, a dash of hot water (120° Fahr.) or cold water be employed, for the purpose of exciting respiratory efforts. That the temperature of the body be maintained by friction, warm blankets, the warm bath, &c. In the case of drowning, in addition to the foregoing suggestions, the following plan may be in the first instance practised:—Place the body with the face downwards, and hanging a little over the edge of a table, shutter, or board, raised to an angle of about thirty degrees, so that the head may be lower than the feet. Open the mouth and draw the tongue forward. Keep the body in this posture for a few seconds, or a little longer if fluid escapes. The escape of fluid may be assisted by pressing once or twice upon the back. (p. 308.)

Tracheotomy.—When called upon to operate on account of foreign substances admitted through the glottis, it is well only to divide the tracheal rings immediately below the cricoid cartilage. The aperture thus obtained is quite sufficient for the purpose. Mr. Green has had occasion to operate seven times on account of foreign substances admitted through the glottis. (Mr. Green, Mr. A. M. M'Whinnie, p. 349.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

Dysentery.—A case is related by the author, in which a combination of acetate of lead $\frac{1}{3}$ grain, ipecacuanha powder 2 grains, in pill, along with laudanum and liquor cinchonæ in a mixture, effected a cure very rapidly. There is nothing new in the remedies, but the combination will be found to be practically one of great value. (Dr. W. Gayton, p. 73.)

Dyspepsia.—*Rennet Wine.*—The substance ordinarily sold as pepsine is inert. On the other hand, a solution of gastric juice (directly prepared from the calf's stomach) in sherry wine, is an active preparation, often followed by satisfactory and remarkable results. The following is the most convenient and best mode of preparing it. Take the stomach of a calf fresh from the butcher; cut off about three or four inches of the upper or cardiac extremity, which, containing few glandular follicles, may be thrown away. Slit-up the stomach longitudinally; wipe it gently with a dry napkin, taking care to remove as little of the clean mucus as possible. Then cut it into small pieces (the smaller the better), and put all into a common wine bottle. Fill up the bottle with good sherry, and let it remain corked for three weeks; at the end of this time it is fit for use. *Dose*: One teaspoonful in a wineglassful of water immediately after meals. (Dr. G. Ellis, p. 328.)

Fistula in Ano.—*Gant's Concealed Knife.*—Gant's concealed fistula knife is an instrument manufactured by Messrs. Weiss. It has a long narrow concealed blade. The point is blunt or sharp at pleasure. No director is required. It is especially adapted to long, narrow, tortuous fistulæ. By its use the operation is performed with the greatest facility. (Mr. Gant, p. 102.)

Hepatic Disease.—*State of Urine in.*—Dr. Eiselt, of Prague, has called attention to the fact, that in cases of melanotic cancer of the liver, the true nature of the affection may be sometimes discovered during life, by the presence of melanine in the patient's urine. Such urine, when left for some hours exposed to the air, becomes of a dark hue, even as dark as porter. Frerichs has shown that the two substanes tyrosine and leucine, which were formerly only known to the scientific chemist, are invariably to be found in the urine of patients labouring under acute or yellow atrophy of the liver. (Dr. G. Harley, p. 79.)

Jaundice.—All cases of jaundice, however various, come under the common heads of "jaundice from suppression of the biliary function," and "jaundice from re-absorption of the secreted but retained bile." The pathology of these two classes of cases is totally different, and consequently so is the treatment required. When the diagnosis is not very clear, by analysing the urine the two forms of disease may be readily distinguished. The urine contains different morbid products according to the particular form of disease. Thus, for example, in jaundice from suppression, the urine contains only those biliary ingredients which exist preformed in the blood. In jaundice from obstruction, on the other hand, the urine

contains, in addition to these, the materials generated in the liver itself, and which have been reabsorbed into the circulation from the distended gall-bladder and ducts. A simple mode of distinguishing the two conditions is, to add to about two drachms of urine half a drachm of strong sulphuric acid, and a fragment of loaf-sugar the size of a pea. If at the time of contact of the two liquids a scarlet or purple colour is produced, it proves that the acids of the bile are present, and the case may consequently be put down as one of jaundice from obstruction. On the other hand, if no bile-acid reaction, but merely a browning of the sugar, be observed, the case is in all probability one of suppression. Dr. Harley pointed out, however, that care must be taken not to confound the two cases; as jaundice from obstruction, especially the severe form, often merges into jaundice from suppression. In jaundice arising from suppression there is no better remedy than benzoic acid, and in that arising from obstruction than inspissated bile. Inspissated bile is usually given immediately after the meal, and thereby actually interferes with stomachal digestion. It should not be administered until several hours after taking food. (Dr. G. Harley, p. 76.)

Prolapsus of the Rectum.—Sieze the protruded portion of membrane by a vulsellum, and pull down as far as possible. Now take hold of the base of the prolapsed portion with a clamp, or pair of forceps, having the two blades accurately meeting throughout the whole length. Next, by a pair of sharp scissors, remove the free portion of membrane above the blades. Wipe the cut surface dry, and carefully apply the strongest nitric acid. This being effected, slowly disengage the blades of the clamp from the base of the tumour; as there will be no hemorrhage the part may be well oiled and returned. If a strong but tight screw is adapted to the handles of the clamp, the pressure may be gradually and slightly relaxed for the purpose of seeing if the hemorrhage is entirely arrested, and yet without the parts slipping up out of the control of the operator. (Mr. H. Smith, p. 100.)

Strangulated Hernia.—*Inversion of the Body.*—If a case of strangulated hernia is seen early, and there is no actual or suspected inflammation in the hernial sac or in the peritoneum generally, completely invert the body of the patient, and in this position try again to reduce the gut. In this position of the body it is much easier to reduce the gut, in consequence of it being dragged upon internally by the free portion of bowel. If not successful, operative measures may be resorted to. The position is effected with ease and delicacy, with the aid of a few assistants, a strong chair, and a blanket. (Mr. F. Jordan, p. 99.)

AFFECTIONS OF THE URINARY ORGANS.

DIABETES.—*Almond Food.*—The bran bread is at best a dry and unpalatable food, and is probably quite innutritious. It moreover contains starch, in spite of the washings to which the bran has been subjected. Patients complain of the similarity between india-rubber and gluten bread. A bread may be made from sweet almonds, which, without containing a trace of starch, is yet pleasant to the taste, and if properly made quite digestible. The almonds must first be very thoroughly ground. From the powder resulting, the gum and sugar must be removed by the agency of water, and the remainder made into bread, with eggs. (Almonds may be procured for about seven-pence a pound. The almond bread ready prepared may be procured from Mr. Hill, 60, Bishopgate-street, London.) Sweet almonds contain 54 per cent. of fixed oil, this renders them nutritive, but difficult of digestion. If, however, they are very finely ground, they are readily acted upon by the gastric fluids. (Dr. F. W. Pavy, p. 351.)

HYDROCELE.—*Electricity.*—Cases of hydrocele in which both the injection of iodine and the seton have failed, have been cured by the use galvanism or Faradisation. The *modus operandi* is the absorption of the fluid produced. The proceeding should be as follows:—Introduce two acupuncture needles, the one into the upper, the other into the lower part of the tumour; then connect the free extremities of the needles with the poles of the induction machine. The points of the needles should project into the fluid. The operation should last about twenty minutes; at the same time gentle pressure may be exercised upon the tumour. A gentle current should be used at first, and may be gradually increased until the patient complaims of pain. Sometimes the hydrocele disappears within the twenty-four hours after the first operation; in other cases three or four operations are required for effecting a cure. (Dr. J. Althaus, p. 117.)

INCONTINENCE OF URINE.—In the majority of cases of incontinence of urine, the liquid is very limpid and abundant, and in some instances phosphatic; and the incontinence is very frequently the result of great irritability of the bladder, induced by the contact of its mucous lining with urine, which, if not alkaline, is not at any rate sufficiently acid for the normal relations between the two to be maintained. The tincture of muriate of iron is unquestionably the most valuable drug in these cases, and the urine under its use rapidly changes its limpid nature. In cases of hysteria the incontinence depends upon the want of mental effort to restrain the flow, aided more or less by the cause just mentioned. In these cases the tinc-

ture of iron is the best tonic. Belladonna has not proved so valuable as has been represented by some. (Mr. T. Bryant, p. 118.)

Lithotrity.—*Irritation of the Bladder.*—When much irritation or inflammation of the mucous membrane of the bladder arises after a lithotrity operation, the effects of infusion of pareira or of buchu are in some cases remarkable. The suffering seems relieved, and the copious mucous and purulent deposits checked. (Mr. H. Smith, p. 117.)

Stricture of the Urethra.—In a slight case of stricture, in which a No. 3 or 4 instrument can be passed without much difficulty, and in which there are no other local symptoms than that of obstruction, and no constitutional symptoms, the daily introduction of an instrument just large enough to pass through the contracted canal, will, in the majority of cases, be quite sufficient to ensure a cure. When examining a fresh case always pass a moderate sized instrument first, and if it will not pass, try successively smaller. The metal ones must be well warmed. In some cases a small catheter may be left in for one, two, or three days. By the absorption of the inflammatory deposit, the tight grasp on the instrument will then be found to be relaxed. The bladder is more tolerant of the presence of an elastic catheter than of a metal one. The treatment of stricture by dilatation should be the rule, and other plans the exception. There are some cases of stricture which are so exquisitely sensitive, that the passage of a catheter causes severe constitutional and local disturbance, and there are others generally described as "contractile strictures," in which the treatment by dilatation aggravates instead of relieving the symptoms. In these cases Syme's operation of external division must be performed. (Mr. T. Bryant, p. 103.)

I used formerly to operate by passing a series of tubes of consecutive sizes, but have now for many years abandoned that practice, and invariably proceed to split the stricture with my dilator, and then to pass at once the largest-sized tube which the meatus will admit. This treatment does not involve any danger to the patient, and the size of the urethra so attained can be readily preserved with the commonest attention. (Mr. B. Holt, p. 111.)

Urinary Calculi.—*Electricity.*—Urinary calculi of the most different chemical composition may be dissolved or disintegrated by means of electricity. We might, by filling the bladder with a solution of nitrate of potash, and then passing a continuous current through the stone, have nitric acid

liberated at one side and potash at the other. There are very few calculi that are not dissolved by either nitric acid or potash, consequently one side of the calculus would be sure to be acted on. Hitherto, however, no instrument has been constructed by means of which the current can be safely conveyed to the calculus, and which will, at the same time, allow of the escape of the gases which are formed by the decomposition of water. (Dr. J. Althaus, p. 115.)

AFFECTIONS OF BONES AND JOINTS, ETC.

Abscesses connected with Diseased Joints.—The practice of indiscriminately opening every abscess which presents itself is extremely erroneous. In the first place, the healing process goes on much better when the air is excluded. Secondly, oxygen is necessary to the putrefactive process, its exclusion, therefore, prevents putrefactive changes in the contents of the abscess. Experience, moreover, teaches us that so long as an abscess remains unopened, and its walls are kept free from local disturbance, usually no inflammatory condition is manifested upon the walls of the abscess. There will probably come a time when the matter must be evacuated, but the secret of success is not to do this until absolutely necessary, or before the medium of reparation deposited within or about the joint, or interposed between the bones, is so completely consolidated and so efficiently organized, that it is structurally competent to resist the twofold deteriorating influences of local and constitutional disturbance, or of either of them. If the bony union be perfect, then we may open the abscess without involving the patient in undue risk, as regards the repair of the joint, or as regards the general health. Pus cannot be absorbed as pus without fearful injury, and imminent danger to the patient. Before what may be termed healthy absorption of an abscess occurs, the pus globules are broken up, and then the altered fluid results of the abscess may be absorbed without injury to the constitution. The solid parts may remain. (Mr. J. Hilton, p. 81.)

If the abscess is enlarging very rapidly, and nature seems incompetent, from her feebleness, to make a successful effort to limit it by a natural barrier, make an opening and draw off half or more of the pus (without squeezing the abscess.) Then close up the opening carefully, lest the outpouring of the fluid should become continuous, and a drain of pus produced so as to affect the general health. The abscess may be subsequently supported by plaster or bandage in order to keep it at rest. If the walls of the abscess are

inflamed, hot, and painful, it is better to make an opening at the most depending part of the abscess, large enough to ensure the evacuation of the whole of the fluid in the abscess. Subsequently the walls of the abscess should be kept in contact as in the other case. If the abscess is in connexion with the hip-joint, a straight splint must be kept continually fixed. (Mr. J. Hilton, p. 86.)

Hemorrhage after Surgical Operations.—*Mr. Webber's Anti-ligature Forceps, and Intracisors.*—Mr. Webber, of Tunbridge Wells, has invented two instruments, which he calls anti-ligature forceps, and intracisors; the former for arresting hemorrhage from divided vessels, the latter for stopping the current of blood through them, especially in cases of aneurism. By a sudden, firm, and momentary grip of the intracisors, the inner coats of an artery are as completely cut through as they can possibly be by a ligature, the outer coat remaining entire. Not only is the pain of constriction avoided, and other evil consequences which not uncommonly arise from strangulation by the ligature, and the process by which it is eventually got rid of; but the outer coat not being severed or materially damaged, no secondary hemorrhage can take place, and nothing is left to prevent the wound healing by the first intention. By this process, the roughness of the inner coat presents a mechanical impediment to the flow of blood, fibrination occurs, and occlusion of the vessel takes place. These instruments have been used upon upwards of 300 arteries and veins of large size with perfect success. (Mr. Webber, Mr. Savory, p. 343.)

AFFECTIONS OF THE SKIN, ETC.

Boils and Carbuncles.—First, carefully examine the extent of the induration of the integument, then pass a tenotomy knife horizontally beneath it. Now turn the blade upwards, and, the forefinger of the left hand serving as a guide upon the upper surface of the tumour, divide the hardened structure, taking care not to wound the surface of the skin. Then repeat the process at right angles to the first incision. The resulting subcutaneous crucial incision will be found to completely and invariably arrest the progress of the disease. When the bleeding has ceased, cover the whole surface of the tumour with collodion. A large carbuncle will often require to be completely *starred* to arrest it completely. A crucial incision in the centre of a carbuncle appears to do little or no good. (Mr. J. G. French, p. 128.)

Pityriasis of the Scalp.—After cutting off all the hairs, use emollient lotions or ointments to overcome the dryness of the skin. Afterwards, by the use of soapy solutions endeavour to modify the cutaneous secretion. Often the most successful means will be found to be the employment of sulphur, in the form of baths and ointments; of these last the best is made of one part of flowers of sulphur to 30 of lard. Preparations of sulphur may at the same time be given internally, and a non-stimulant regimen enforced. All high-seasoned foods must be prohibited. (M. Hardy, p. 128.)

Small-pox.—The Indian Pitcher Plant, *(Sarracenia Purpurea)*, to which we drew attention in our last volume, seems to have a most extraordinary influence in small-pox. It arrests the morbid process, and induces a healthy instead of a diseased action. The dried root should be used. The method of making the decoction is to slice from one to two ounces of the root into thin pieces, place them in an earthen pot, add a quart of cold water, and permit the liquid to simmer gently over a steady fire for two or three hours, so as to lose one-fourth of its weight. To a person suspected to be under the influence of the disease, but with no distinct eruption, give a large wine-glassful of infusion. The effect of this dose is to bring out the eruption. After a second or third dose, given at intervals of from four to six hours, the pustules subside, apparently losing their vitality. In a subject already covered with the eruption of small-pox in the early stage, a dose or two will dissipate the pustules and subdue the febrile symptoms. The dried root can now be obtained of Messrs. Savory and Moore, of London. (Mr. H. C. Miles, p. 120.)

Prevention of Pitting in.—The following plasma, applied by means of a camel's hair pencil, as soon as the eruption makes its appearance, and repeatedly reapplied, is very successful in preventing the pitting of small-pox. ℞. Potassii iodidi ℥xij.; maranta ℥j and ℈j; glycerin f℥ij; ol. bergamii gt. xl. Divide the glycerine into three equal parts; in the first portion dissolve the iodide of potassium, using heat if necessary, and add the oil of bergamot; put the second portion of the glycerine into a porcelain capsule and heat it over a water bath; then mix with the remaining portion of the glycerine the arrowroot, triturate well in a glass mortar, and gradually add to it the boiling glycerine while cooling; it should be stirred with a glass rod continually and the solution of iodide of potassium added by degrees, until the mixture becomes of a transparent appearance and of the consistence of jelly. The face may be cleansed when the pustules burst, by sponging with tepid water. It is well to do this frequently for the sake of clean-

liness, the comfort of the patient, and the success of the application. The strength of the preparation may be increased or decreased as the medical attendant thinks fit. (Dr. C. J. Cleborne, p. 126.)

AFFECTIONS OF THE EYE AND EAR.

Atropine.—For inunction over the brow I prefer a solution of atropine in glycerine to the use of extract of belladonna, it being efficacious, cleanly, and free from the nauseous smell of the drug. In a liniment, a strong alcoholic tincture of belladonna is fully as efficacious as the extract, and far less disagreeable in use. For the purpose of dilating the pupil, my own practice is to touch lightly the lining membrane of the lower eyelid with a brush slightly moistened with a solution of the strength of two grains to the ounce. The solution of atropine in water has a great tendency to become turbid. The addition of spirit causes the liquid to irritate the eye. Glycerine is preferable; a few drops of glycerine added to an ounce of the solution of atropine in water is scarcely felt when applied to the conjunctiva, and perfectly preserves the transparency of the solution. It is important that the glycerine used should be pure. (Mr. W. White Cooper, p. 156.)

Cataract.—*Repeated Evacuation of the Aqueous Humour.*—M. Sperino has long derived great advantages from repeated evacuation of the aqueous humour in cases of iritis, interlamellar keratitis, severe hypopion, staphyloma of the sclerotica, and congestion of the choroid and retina. Lately the same remedy has been employed as a direct means of cure in cases cataract. After each evacuation, which is made through the the same aperture in the cornea, ice is applied to the eye for some hours. A Guerin's knife is introduced at the extreme edge of the cornea, generally on the outer side. This does not evacuate the humour. For this purpose introduce a small silver probe, having a blunt extremity. This will serve also without preliminary incision for future evacuations, the point of puncture being easily found again, and no inconvenience resulting from its being reopened. (Dr. Sperino, p. 147.)

Needle-Operation for Solution of Soft Cataract.—Always introduce the needle through the cornea: less pain is caused, only one coat of the eye is punctured, and the needle is never out of view. The great principle to be attended to, is to procure absorption of the cataract in its natural position. At a first operation merely break the centre of the capsule, and penetrate the capsule sufficiently to admit the aqueous humour. If you make the cornea the fulcrum, and use the needle as a

lever, dislocation of the lens is almost sure to occur. If the capsule is much broken, adhesion to the iris will probably ensue. Artificial dilatation of the pupil must be kept up until the cataract is absorbed. The repetition of the operation under some weeks is positively unnecessary, and often hurtful. So long as lenticular matter is exposed, nothing more is desirable. After an operation absorption never ceases. But it can be very materially facilitated by keeping the cataract exposed, and breaking up the substance. The great nicety of the operation is to secure the greatest absorbing influence with the fewest number of operations, and the least disturbance of the eye. This operation, in cases of soft cataract, acts so well as to leave scarcely anything more to be desired. (Mr. Haynes Walton, p. 149.)

Chronic Obstruction of the Lachrymal Duct.—In cases of chronic obstruction of the lachrymal duct, the greatest benefit results from continued steady pressure on the sac. This may readily be effected by a short spring fastened to a riband that goes round the forehead, and tied at the back of the head. On the free extremity of the spring is placed a small pad of gutta percha moulded when in a plastic state to the parietes of the emptied sac. The advantage of using gutta percha is, that it is unaffected by moisture, and can be accurately adapted to the parts beneath. If a fistulous opening exists, suitable dressings may be readily applied beneath. The treatment by pressure, together with Mr. Bowman's operation, render quite unnecessary the resort to the old plan of silver style and button. (Mr. W. O. Chalk, p. 160.)

Conjunctivitis.—*Opium.*—A weak solution of the extract of opium, one grain to the ounce, has a most beneficial influence on many cases of conjunctivitis. In many instances the inflammation will yield to this, which has resisted every other application. The wine of opium of the present Pharmacopœia (1851) is a well known remedy, but very painful from containing too much spirit. The popular collyrium formed by a combination of diluted Goulard water with vinum opii, is open to the grave objection that an insoluble meconate of lead is formed, which may become impacted in the cornea, leaving an indelible mark if there be abrasion or ulceration present. (Mr. W. White Cooper, p. 159.)

Earache.—Introduce into the ear a piece of cotton wool moistened with a mixture of chloroform and laudanum. (M. E. Duval, p. 168.)

Eyeball.—*Operation for Removal of.*—Place the patient in the horizontal position. Introduce the spring speculum. Pass a silk

thread through the eye, upon which make traction. Puncture the globe a little behind the cornea, with a pair of sharp-pointed curved scissors, and with the same instrument remove the whole anterior portion of the globe a little behind the insertion of the muscles. Now seize the edge of the remaining sclerotic, pass the scissors to the back of the eye, and the attachments of the remaining portion are easily severed. (Mr. J. Keene, p. 159.)

Glaucoma.—*Iridectomy.*—The operation of iridectomy is now adopted by most ophthalmic surgeons as the only means of arresting the progress of glaucomatous affections. A full account of the mode of operating will be found at page 139. (Mr. W. Bowman, p. 130.)

Opacities of the Cornea.—*Faradization.*—In opacities of the cornea which defy other therapeutical proceedings, use Faradization. Galvanism must not be used; but the induced current, on the contrary, may be employed with safety. A moist conductor, connected with the positive pole, should be placed in the hand of the patient, while the negative pole is applied to the closed eye. This is not an empirical remedy. Electricity has a peculiar power in causing absorption of effusions. (Dr. Althaus, p. 147.)

Operations on the Eye.—*A New Forceps.*—Any means of steadying the eye during operations on that organ, to be really effective, must be under the control of the operator himself, and yet so arranged as not to occupy a hand, or even to much interfere with the delicate motion of the fingers. The best contrivance for this purpose is a small pair of self-closing forceps, attached to a ring which, during the operation, is slipped over the middle finger of the hand, steadying the upper eyelid. The point of the forceps should be exactly level with the tips of the fingers, and during the operation it should be made to firmly hold a portion of conjunctival and subconjunctival tissue. The instrument is extremely simple, and answers the end required admirably. Of course to make the forceps self-holding the blades should cross each other. (Mr. T. Nunneley, p. 157.)

Ophthalmia Tarsi.—(*Tinea Tarsi*).—This very troublesome affection commences in the hair follicles, at the margin of the eyelids, and produces its chief effects around the roots of the ciliæ. In the simpler forms, and in the early stages of tinea, the treatment mainly consists in carefully removing the little scurfy incrustations round the roots of the lashes, until the cup-like follicle from which the hair emerges can be distinctly seen, and then in applying some mild form of mercurial oint-

ment—the ung. hydrargyri nitratis mitius is the most suitable. The incrustation round the ciliæ must be removed by the surgeon himself, as the effectual performance of this lies at the root of success. When large and irregular masses are firmly matted with the ciliæ it is better to cut off the latter close to the root, as the part can thereby be better kept clean, and the application be more effectually made. After removing the lashes and incrustations, small irregular ulcerations are often seen on the tarsal margins. The best application to these is a finely-pointed piece of nitrate of silver carefully applied to each separately. During the intervals of seeing the case the parts must be kept carefully cleansed, and some slightly astringent collyrium, such as a weak solution of sulphate of zinc, should be applied. In employing these means the state of the constitution should not be lost sight of. (Mr. G. Critchett, p. 162.)

Ophthalmic Ointments.—For ophthalmic ointments a basis is required which shall neither become rancid nor irritate the eye. The material which possesses these qualifications in the highest degree appears to be the butter obtained from the Theobroma cacao nut, from which chocolate is made. This nut contains about four-tenths of its weight of a fixed oil, of the consistence of firm tallow, having a rather agreeable and characteristic smell, and little, if any, tendency to become rancid. The butter is obtained by roasting the nuts, bruising them, and then submitting them to strong pressure between heated metallic plates. Though very firm, it has the property of becoming fluid at a low temperature, and when applied to the skin feels cool and pleasant. If found rather too firm, it can be mixed with a little olive oil, the best proportion being about two parts of the cacao butter to three of oil. (Mr. W. White Cooper, p. 153.)

MIDWIFERY, AND THE DISEASES OF WOMEN AND CHILDREN.

Chloroform in Midwifery.—Place your chloroform in a three or four ounce phial, with a perforated cork. In the cork place a short piece of glass tube, having only a minute opening at the free end. On inverting the bottle not less than ten, and not more than thirty drops, can flow at once. The chloroform is thus used with economy and safety, besides the the saving of trouble. The best inhaler is made of thin coarse domette, stretched upon a framework of tinned iron, or german-silver wire, and having a moveable handle; the whole forming a kind of shallow cup or mask, covering the

lower half only of the face. The whole apparatus may be obtained of Maw & Son, London, including bottle and drop-tube, for eight to eleven shillings, and made so portable as to be readily carried inside the hat. (Dr. T. Skinner, p. 185.)

Contracted Pelvis.—What are we to do in cases of contracted pelvis? We have five remedies, if they may be called such. These are, 1, the application of the long forceps; 2, turning; 3, the induction of premature labour; 4, craniotomy; and 5, Cæsarian section. In what cases are they respectively applicable? The long forceps is called for in cases of only slight disproportion, giving rise to protracted labour. The instruments for this purpose must be long, double curved, well made, and capable of being worked by the two hands. Turning is to be employed when at the full term of pregnancy a decided contraction of the pelvis is found to exist. The induction of premature labour is to be recommended in preference to turning where an option is left us, that is, where at an earlier period of pregnancy the female consents to the operation, and the medical attendant is aware of its necessity. Craniotomy is limited to cases where the contraction is very great, yet not so great as to require Cæsarian section, which is our last resource, only to be used in those cases of excessive contraction when there is no hope of extracting the child, even in portions at a time. (Dr. M'Clintock, Dr. Barnes, p. 183.)

Ergot of Rye.—The following is a very successful method of preparing draughts of ergot of rye:—Ergot in powder ℥j.; boiling water ℥ij.; which divide into two draughts. The ergot powder not to be strained off, but left in the draught. The ergot should be powdered without drying. Add a little spirit of wine or brandy, and preserve in small bottles with ground glass stoppers. These draughts preserve their efficacy for months. (Dr. H. B. Montgomery, p. 241.)

Medicated Pessaries.—The value of a great variety of local applications in the treatment of uterine diseases is not appreciated by the profession, chiefly on account of the want of some easy and effectual manner of employing them, the patient herself applying them. The butter obtained from the Theobroma cacao nut, is likely to prove extremely useful. It has the consistence of wax whilst cold, yet it becomes liquid in a few minutes when introduced into the vagina. The following formulæ are useful, and serve to show the manner of using the butter. ℞. Mercurial ointment, four scruples; extract of belladonna, one scruple; cacao butter, four drachms; olive oil, one drachm. Mix; divide into pour pessaries, and order one to be introduced into the vagina every night.

℞. Iodine of potassium, one drachm; extract of conium, four scruples; cacao butter, four drachms; glycerine, one drachm. Mix; divide into four pessaries. Boxes of these pessaries may be obtained ready prepared by Mr. Cooper, of 26, Oxford Street, London. (Dr. T. H. Tanner, p. 236.)

Obstetric Forceps.—The bad consequences which sometimes result from the use of the forceps arise entirely from the improper and unskilful use of the instrument. My impression of the safety of the forceps is so strong, that I now resort to it much earlier in a case, and more frequently than I formerly did. As a general rule, if the head has been arrested for *three hours* in the cavity or outlet of the pelvis I proceed to apply the forceps. (Dr. J. G. Swayne, p. 187.)

Dr. Cappie's Obstetric Forceps.—The blades of these forceps are separable from the handles. A bayonet-joint answers every purpose. The portability of the instrument is much increased, the blades being carried in a double pouch of chamois leather, and the handles in another. The handles may, by this contrivance, be of pretty good length, so as to give proper leverage. Another great advantage of this plan is, that the blades may be applied without bringing the patient so much over the edge of the bed as is necessary when an ordinary pair of forceps is used. (Dr. Cappie, Mr. J. R. Traer, p. 194.)

Ovariotomy.—*Adherent Omentum*—In a case lately operated on at Birmingham, it was found on examining the tumour after its extraction, and before the pedicle was secured, that a large portion of omentum was spread out fan-like, over its anterior and upper surface, to which it was closely adherent, as it had been also to the abdominal walls; and in extracting the tumour, the omentum had been very much torn, and numbers of its vessels were now bleeding profusely. Mr. Clay adopted the bold proceeding of separating the wounded portion by the actual cautery. The piece thus removed measured nine inches long and seven wide. The patient recovered nicely. (Mr. Clay, p. 224.)

Pain during Menstruation.—The first element in the treatment is rest, during, and for a short time previous to the flow. The food must be plain and simple, and aperients administered to produce regular action of the bowels, and prevent congestion and fulness of the pelvic organs. To relieve the pain actually present, opiates may be necessary, and these are most efficacious in the form of enemata. The compound sulphuric ether of the pharmacopœia, combined with camphor, henbane, or sal volatile, produces however

very satisfactory results, and often obviates the necessity for the administration of opiates. Cannabis indicis, but for the uncertainty of the preparations obtainable, is a valuable medicine. Chloroform is often inhaled to a slight extent with advantage. Opium and camphor combined are often very serviceable. If there is any tendency to gout or rheumatism, give colchicum internally; it may be advantageously combined with blue pill every night, and saline laxatives twice or thrice a day. A warm hip-bath for half-an-hour or so is, perhaps, the most effectual of all remedies in affording relief, while it is occasionally not less effectual in directly causing a suppressed discharge to reappear. (Dr. Graily Hewitt, p. 384.)

Premature Labour.—*Induction of.*—By means of hydraulic pressure the os uteri may be dilated safely and expeditiously, and premature labour successfully accomplished, at any time necessary. There is none of the delay and consequent anxiety to the patient, and inconvenience to the medical attendant, entailed by the employment of other means. A caoutchouc bag is required, which, when introduced into the os uteri, is injected with water, by means of an ordinary Higginson's syringe. The bag should be of a fiddle shape, having, when distended, a narrower cylindrical central portion, dilating at either end into a bulging or mushroom-like expansion. The object of this is to prevent the bag from slipping forward into the uterus, or backwards into the vagina. The bag is prolonged into a long narrow tube with a stop-cock at the end, to keep in the water when injected. The injecting medium is the ordinary Higginson's syringe, an instrument which should always be carried in the obstetric trousseau, as it is useful for many other purposes. Three bags of different sizes are sufficient as a series. To facilitate the introduction of the flaccid bag into the cervix uteri, a small pouch is attached outside, to receive the end of the uterine sound, which, guided by the finger of the left hand, applied to the os uteri, serves to push the bag into the cervical canal. The instruments are well made by Messrs. Weiss, Strand. The vagina must be dilated first by means of the largest bag. Then introduce the smallest into the cervix. The process of dilatation ought as a rule to take at least three or four hours. When the dilatation is complete, or a little before, tap the liquor amnii, but replace the dilator before the whole of the liquid has drained away. Expulsive action will now most likely arise. If not, it may be necessary to resort to accelerative measures. These are the forceps and turning. If the head presents, and the case admits, the long forceps should

be employed, without any considerable delay. This ultimate operation may frequently be carried out by the method of combined external and internal manipulation, which dispenses with the necessity for passing the hand through the cervix uteri. (Dr. R. Barnes, p. 169.)

Puerperal Fever.—Puerperal fever, is, without exception, a fever of absorption, arising from the absorption of decomposed animal organic matter. The decomposed animal organic matter may be communicated to individuals from without, or it may be generated within the generative passages. The latter is rare, and cannot be guarded against, the former is common, is the usual cause of puerperal fever epidemics, and is preventible. The sources of the decomposed organic matter introducible from without, are, 1st, from a dead body, in a certain stage of putrefaction; 2nd, from the bodies of sick persons whose maladies are attended with the generation of decomposed animal organic matter. The conveyer of the virus is the finger of the examiner, the hand of the operator, surgical instruments, bed-clothes, sponges, the atmospheric air. The place where the decomposed organic matter is absorbed, is the inner surface of the uterus, it being, in consequence of pregnancy, deprived of its mucous membrane. Infection most often occurs during the opening of the uterus, for then not only is the inner surface accessible, but there is also the necessity to probe it with the finger. At the time before washings with chlorine were practised, all those women with whom the period of the opening was protracted beyond the usual time died, almost without exception, of puerperal fever. (Dr. Semmelweis, p. 205.)

Puerperal Pyæmia.—*Tannin.*—The internal adminstration of tannin often proves very serviceable in puerperal purulent resorption. It should be given to the extent of nine grains per diem. (M. Woillez, p. 223.)

Turning in Contracted Brim.—The difficulty sometimes experienced where one foot alone is brought down, is done away with by adopting the following practice. If the fœtus occupy the first or second position (Naegelé), seize the posterior foot, which, holding the anterior one in its fold, invariably secures the descent of both. If the position be the third or fourth, secure the distal, and not the proximate foot, traction on which inverts the child on a diagonal axis, rather than the longitudinal one of the former case. If only one foot can be reached at first, by a little traction on this, the other foot is brought into the vicinity of the hand. (Dr. E. G. Figg, p. 184.)

Uterine Injections.—Of the stimulant and astringent kind of injections the sulphate of zinc is the most objectionable. It is often the cause of irritation and mischief, and it is difficult to believe that the constant use of so poisonous a substanace over so large a surface of mucous membrane can be other than injurious. The nitrate of silver is also very unfitted for injection. A solution of alum, either alone or in decoction of oak-bark, is the best and most effective injection we can prescribe. A mixture of equal parts of tannin and alum forms a more elegant, but also more costly substance as an astringent. For the anodyne injections, solution of belladonna and of opium are the only serviceable remedies, and to these may be added the liquor plumbi and hydrocyanic acid, with occasional good effect. For emollients, milk and water, linseed tea, barley water, and thin starch or gruel, are very valuable. Of the gases, the most valuable are the carbonic acid gas, and the vapour of chloroform. Among the instruments for injection, for the use of the poorer classes, the following is simple and effectual:—Take a piece of gutta percha tube about five feet long, and fit this at its upper end with a few inches of elastic tubing, this can be slipped over the mouth of a common kettle, and the other end being placed in its proper position, the inversion of the kettle produces a constant stream of water, of sufficient force to well wash out the canal. Injections, it must be remembered, are of little use as curative agents when employed alone—their real position is that of adjuvants to a higher class of remedies. (Mr. R. Ellis, p. 239.)

Uterine Prolapsus.—*Sponge Pessary.*—By the following simple contrivance, uterine prolapsus, unless of a very aggravated form, may be effectually supported without the manual interference of a medical attendant. A conveying tube about four inches and a-half in length, and an inch or one and a-half inches in breadth, made of the finest and lightest turned ivory, having a high polish. A fine oval shaped sponge is sewn on a round and slender ivory washer, having on its inferior surface an ivory stem. By means of the tube the sponge is introduced into the vagina, and the tube is then withdrawn. The sponge, with the ivory washer and stem, constitutes the pessary. It will remain in its place without falling, but it may be further secured, if so desired, by passing a stay-lace through a hole made for that purpose in the end of the stem, and fastening the same to a belt. The sponge must be withdrawn and washed, and a fresh one introduced daily. The softness of the sponge and the facility for preserving cleanliness are great recommendations of this plan. (Dr. A. B. Granville, p. 237.)

MISCELLANEA.

BELLADONNA.—To obtain a really good and energetic extract of belladonna it is necessary to use the young stalks, flowers, and fruit, and not the leaves only, as directed by the London Pharmacopœia. (Mr. Squire, p. 155.)

CIMICIFUGA RACEMOSA.—The tincture of cimicifuga, in doses of thirty minims three or four times in twenty-four hours, is a most valuable nervine and calmative in many cases of pseudo-rheumatism and obscure nervous pains. It has a peculiar action on the uterus. In irritable and painful conditions of that organ, cimicifuga gives marked relief. In neuralgic pains often met with in females at the time of cessation of the menses it is equally beneficial. Such patients frequently suffer from distressing pain at the upper part of the head, recurring with greater severity at night. These cases are very satisfactorily met by this remedy. Pains in the mammæ are also relieved by it, and in many cases of lumbago it is almost a specific. It is rather pleasant to the taste, and improves the appetite rather than otherwise. (Editor of Lancet, p. 299.)

DENTAL CARIES.—*Tannin.*—An excellent application is creosote mixed with a little collodion. By this means a gelatinous consistency is obtained in the agent employed, which, forming a varnish over any orifice in the carious tooth, prevents the access of air to the sensitive parts. A strong solution of tannin in camphorated spirits of wine is also of use. (p. 393.)

DIGITALIS.—*Its action.*—There is at present great uncertainty as to the action of digitalis, an uncertainty which a series of carefully conducted experiments is required to clear up. I am inclined to think it excites the heart, and that the risk in its use is from over-stimulus. Hence it finds its opportunity in cases of enfeebled circulation, where, as in enfeebled heart and delirium tremens, there is no fear of the cardiac stimulus being too potent. After death from digitalis, the heart is found firmly contracted, whilst animals killed by the injection of tincture of aconite, or the administration of chloroform, have evidently both sides of the heart more dilated than those dying from digitalis. We may come to regard digitalis as our cardiac tonic, specially to be resorted to in cases of asthenia, and peril from failing circulation. (Dr. C. H. Jones, p. 288.)

GALVANIC CAUTERY.—The galvanic cautery has great advantages over other cauteries and the knife. It acts rapidly and energetically, it causes little or no hemorrhage, there is no danger of its hurting the adjacent structures, it favours the growth of healthy granulations, and is not so terrible to the patient

as the red-hot iron; and deeply-seated tissues which are inaccessible to the knife may, by the galvanic cautery, be burnt or cut without danger. After its use the condition of the patient is almost always satisfactory, besides which the proceeding is scarcely painful. (Dr. J. Althaus, p. 318.)

Opium.—How is it that opium produces sleep? Recent researches have shown that the bloodvessels of the brain are empty during sleep, compared with their state of repletion during waking hours. Correspondingly we find, during opium-poisoning the face pale and the scalp cool, showing a lessened circulation through the branches of the external carotid. The overpowering drowsiness which exposure to intense cold produces, is very probably dependent on a similar anæmia of the brain. We may be pretty certain, then, that the explanation is that the soporific action of opium is, at least in part, dependent on a contraction of the cerebral arteries, occasioned by the influence of the drug on the vaso-motor nerves of those vessels. The supply of blood being shut off, the functions of the hemispheres are for the time in abeyance. This view is in accordance with the action of opium in restraining diarrhœa, and locking up secretions, with its curative efficacy in some inflammations, and with its tonic and sustaining operation on the nervous system. (Dr. C. H. Jones, p. 291.)

Opium Poisoning.—It will be seen from a case related at p. 266, that the efficacy of belladonna as an antidote in cases of opium-poisoning is becoming more and more recognised by the profession. A tablespoonful of the following medicine was given at a dose: tinct. belladon. ℥iv.; mucilag. g. acac. ℥ij.; aquæ ad. ℥iv. M. ft. mistura. Belladonna may, however, be given in far larger doses than this, if necessary. (Dr. Motherwell, p. 267.)

Iridin.—This is a dark brown powder obtained from the root of the iris versicolor (or blue flag), by means of exhausting with spirit. An oleo resin is precipitated by the addition of water, this is collected and mixed for convenience of keeping with an equal quantity of some absorbent powder. It is made by Tilden, of New York. The ordinary dose of this is from two to five grains. It is a mild aperient cholagogue, and is alleged to be diuretic, and to excite all the secretory organs. It has produced effects very similar to those occasioned by a combination of blue-pill, rhubarb, and aloes. It seldom fails to produce a mild catharsis with bilious evacuations; and appears to possess the advantages of (1) not requring the addition of a mercurial; (2) not irritating the rectum as aloes

is apt to do; and (3) it has no astringency, and therefore does not produce subsequent costiveness like rhubarb when given alone. (Editor of Lancet, p. 300.)

LEPTANDRIN.—Leptandrin is a black shiny powder imported in sealed bottles, prepared by Tilden, of New York. It is obtained from the root (rhizome) of the Leptandra Virginica, an American plant, belonging to the natural order, Scrofularaciæ. The effect of leptandrin is to gently excite the liver, and promote the secretion of the bile without producing the least irritation of the bowels. It does not purge at all, and even its laxative effect is very slight, while on the stomach it acts as a decided tonic. It is useful in many cases of diarrhœa in children and adults where there is an evident lack of the proper biliary secretion. Under its influence the stools soon assume a natural colour and consistence. (Editor of Lancet, p. 301.)

PHLORYDZINE.—*Its Action and Uses.*—Phlorydzine is a neutral principle which exists in considerable quantities in the bark of the root of the apple, plum, and cherry tree, also in some others. It may be obtained in the form of long, flat, brilliant silky needles, of an intensely bitter taste. It may be employed with success in many forms of atonic dyspepsia, occurring in delicate females, to whom it is impossible to administer either bark, quinine, or salicine in any shape, without bringing on serious nervous excitement. It is also extremely well adapted for the treatment of young children of delicate constitutional habit. It may be combined with syrup of phosphate of iron and manganese, and with syrup of iodide of iron. The dose is five grains three or four times a day for adults, and proportionately less for children. A trial of phlorydzine should be made in every adult case where quinine is not easily tolerated, as also in every case where young children require a tonic treatment either in consequence of constitutional debility, or from the debilitating effects of some previous illness; it is much more easily taken than either bark, quinine, or salicine, the bitter being of an agreeable kind, and changing, as I said above, into a sweetish taste, with the flavour of apples. I have never known it to disagree, even in large doses of ten grains three or four times a day; and I have, in very many instances, found it of great use where other tonic substances could not be taken. (Dr. de Ricci, p. 296.)

PORTE-CAUSTIQUE.—*Dr. Galligo's.*—The following new, ingenious, and extremely simple contrivance is suggested by a Florentine physician, Dr. Galligo. Pine-wood, such as is generally used for lucifer matches, can imbibe a quantity of

caustic liquid sufficient for rendering it available for all ordinary causterizations. Concentrated acids, the liquid nitrate of mercury, and a concentrated solution of nitrate of silver, are all most readily imbibed by a wooden pencil of this kind; and as such a pencil can, on the spot, be cut into any shape that may be required, it seems certainly to offer some advantages over the more or less clumsy pieces of lunar caustic generally employed. The smallest point may thus be cauterized without any injury to the surrounding tissues, the narrowest fistula may be passed through, and the remotest point of the pharynx be touched without any danger of an accident, the caustique and its porte-caustique being of one piece. (p. 334.)

Test for Alkaloids in Cases of Poisoning.—*Nitro-Prusside of Sodium.*—Some important discoveries have lately been announced by Mr. Horsley, of Gloucester. He introduces a new test agent, the nitro-prusside of sodium. This test is prepared thus:—Take three drachms of dry powdered yellow prussiate of potash; put it into a evaporating-dish, pour over it gradually a mixture of six and a-half drachms each of strong nitric acid and water; digest this over a water bath till all bubbles of gas cease to be evolved; then weigh out five and a-half drachms or so of carbonate of soda, and add it carefully by degrees till the acid liquor is neutralised. Boil for a few minutes till a greenish brown precipitate forms; then filter, dilute with an equal bulk of water, and preserve for use. If a single drop of a solution of strychnia of 1 per cent. strength be agitated with one or two drops of this solution, an abundant crop of crystals is deposited, on which the ordinary sulphuric acid test may be tried. A similar experiment with morphia gives similar results, the crystals being, however, star instead of lancet-shaped. The salts of morphia have moreover the power of reducing salts of silver. If one drop of solution of acetate or sulphate of morphia (1 per cent. strength), be mixed with fifteen or twenty drops of a solution of nitrate of silver (4 grains per drachm), and agitated for a minute or so, a fine white crystalline precipitate of frosted silver shortly takes place, the liquor acquiring a slight yellow colour from the reaction of the liberated nitric acid upon the morphia. By the discovery of the nitro-prusside test, the plea for the non-detection of strychnine in the presence of morphia no longer holds good. (Mr. J. Horsley, p. 304.)

Testing for Strychnia.—In examining the contents of a stomach for the presence of strychnia, employ no heat, nor add any unnecessary fluid which might require subsequent evaporation. To extract any alkaloids or their salts which

may be present, add equal measures of acetic acid and cold water, in sufficient amount to thoroughly acidulate the mass, and evaporate to reduce the alkaloid to the solid state. In the production of the colour tests, add no more sulphuric acid to the strychnia than is necessary to dissolve it. Moisten very slightly the bichromate of potash, or ferricyanuret of potassium, and then apply it to the alkaloid. Thus two saturated solutions or mixtures are obtained, which show the play of colours, even though the quantity of alkaloid present be very minute. (Dr. R. P. Thomas, p. 268.)

Veratrum Viride.—Veratrum viride is a plant indigenous to North America, where it has been much used in medicine for some time. Its action is quite different to that of the veratrum album of this country. The remedy has been chiefly introduced here by Dr. Cutter, who himself manufactures and imports a genuine tincture. It is made from four ounces of the root to the pint of alcohol, specific gravity 0·917. The doses of this are as follows: adults, 7 to 10 minims; children, 3 to 5 minims; infants, ½ to 1 minim, every two hours, or pro re nata. 1. As a local remedy in the form of ointment veratrum viride is very successful in removing chronic prurigo; in the form of cataplasm it is useful for ulcers of the leg, and swollen rheumatic joints. 2. It is a simple arterial sedative, without any other appreciable effect; full dose, eight minims, thrice daily. Thus used in organic and functional diseases of the heart and circulatory organs, and in hæmoptysis. 3. It may be given in the same doses, but every two hours, keeping within the nauseating point, but approaching it at first. Thus used in pneumonia, pleurisy, acute bronchitis, irritation of the brain and its membranes, acute rheumatism, typhoid fever, irritative fever from wounds, burns, bruises, and surgical operations, puerperal fever (with stimulants), scarlatina, rubeola, and acute cholera infantum. 4. As a prostrating nervous and arterial sedative, producing nausea and vomiting, with a very low pulse, diminished number of respirations, coldness of surface subjective and objective, numbness, inability to move the muscles, tingling in the extremities, increase in secretions urinary and perspiratory, a sense of impending death, with no clouding of the intellect, &c. *Full dose, eight to thirty-two minims, given every hour.* Here the physician should remain by the patient and watch the effects, providing himself with alcoholic stimulants and opiates, which may be freely given, in case the full action is too severe. Thus used in puerperal peritonitis, severe sthenic pneumonia single or double, severe acute rheumatism, and acute bronchitis.

Compared with venesection, the administration of veratrum viride has the advantages of not impairing the quality of the blood by a direct withdrawal of a portion of its solid and fluid constituents, whilst at the same time it equally lessens the force of the circulating current and exerts a sedative influence upon the nervous system. Compared with digitalis, the veratrum viride is sure, prompt, and not cumulative. Compared with antimony, its effects are not as permanent, it does not seem to directly change the character of the blood, and does not purge. No instance of poisoning by veratrum viride has been known, no doubt the vomiting produced is a great safeguard. (Dr. E. Cutter, p. 279, and Med. Times and Gazette, June 28, 1862, p. 665.)

Commentary on Midwifery,

AND THE

DISEASES OF WOMEN AND CHILDREN,

FOR THE LAST HALF-YEAR.

We are again enabled to present to our readers a few of our gleanings on this subject during the last half-year. On each occasion that we commence this work at the beginning of a half-year, we find ourselves saying, "Surely the subject is nearly exhausted, and we shall find but few novelties for the medical public;" but when we have fairly begun to read the interesting papers which are almost weekly presented to us by different writers, we soon find that the subject, instead of being exhausted, increases in interest, if not in quantity. We find also that it is a common field on which all branches of the Profession are more and more amalgamating. It has hitherto been the department in which the Surgeon and General Practitioner have been almost the exclusive practitioners, but it is now seen that the Physician must himself become more or less a General Practitioner, and understand Midwifery and the Diseases of Women and Children, if he means to keep his position in the medical race. The consequence is that the General Practitioner is becoming a *General Physician*, and the pure Physician is, with some exceptions, gradually becoming the same, especially in the provinces. The two branches of the Profession are becoming one and the same. The reader will perceive on reading the following papers, some of the most interesting of which are by leading Physicians, that this remark of ours is a true one. For our own part we shall be rejoiced to see all the members of the profession equally well educated, and all possessing the highest titles, so that none may be able to pride themselves on titles and distinctions but only on the talents, industry, and characters which they possess.

We look upon Dr. Barnes's method of Dilating the Os and Cervix Uteri, in cases which require Premature Labour to be induced speedily, as a great improvement. We have hitherto been obliged to depend on a slow process, occupying twelve or twenty-four hours, for the dilatation of these parts. Premature

labour can be brought on surely enough by means of puncturing the membranes, dilating the cervix by sponge tents, separating the membranes, injecting water, &c. &c., but all these methods require many hours, whereas in a case of puerperal convulsions, for example, which admits of no delay, we have wanted some means of more rapidly dilating the passages in order to enable us to operate at once. Dr. Barnes's instrument consists of a fiddle-shaped bag "having, when distended, a narrower cylindrical central portion, dilating at either end into a bulging expansion. The object of this is to prevent the bag from slipping forward into the uterus, or backwards into the vagina. The bag is prolonged into a long narrow tube, with a stop-cock at the end to keep in the water when injected." This bag can be introduced empty into the os and cervix uteri, by means of the uterine sound, and then filled with water gradually, by a Higginson's syringe. The whole apparatus may be had of Weiss. When water is injected the very shape of the bag keeps it in its proper position. In three or four hours the rigid parts may be dilated, and in a much shorter period if the case be desperate. Uterine pains will already have been produced, if not, you may withdraw the bag by letting off its contents, rupture the membranes, and before the water has completely drained away, again introduce the dilating bag. A little of the amniotic fluid ought to be left in the womb if possible. If labour now set in we need only wait the event, but, if delay be dangerous, Dr. Barnes recommends that first the long forceps should be tried, and if this fail that we should turn. With all respect to Dr. Barnes, we would advise the long forceps to be dispensed with, and that the operator simply and at once turn the child. The sooner he does this the better, the very application of the forceps will probably greatly increase the contractions of the womb, and make the turning more difficult; whereas it is a very simple process if done as soon as possible after the membranes have been ruptured, and all the better if done by the practitioner himself when in the act of rupturing the membranes, before the womb has had time to begin its contractions. The difficulty of turning consists in its being delayed too long. In a case related by Dr. Barnes the os and cervix were dilated pretty well in two hours.

The Forceps of Dr. Cappie, of Edinburgh, are not generally known to the profession. One great disadvantage in forceps is, that the handles are so long that the blades cannot be easily introduced, except the patient is quite at the edge of the bed—in fact the buttocks must be almost off the edge of the bed in order to give room for the handle of the upper blade to be sufficiently depressed. Dr. Simpson's beautiful and small handled forceps have evidently been contrived to obviate this difficulty,

and we seldom have occasion to use any other kind ; they possess as much power as is generally safe to be applied, and the handles are sufficiently short to allow the handle of the upper blade to be depressed on any part of the bed, without bringing the patient to the edge. In Dr. Cappie's forceps each blade is separate from the handle. The blade is thus introduced with great ease in any part of the bed, and the handle is easily attached by a bayonet-joint. The handles are longer when thus attached than Dr. Simpson's, and there is room and a contrivance for both hands to be used if such power be required, whilst in Dr. Simpson's only one hand can conveniently be used. Dr. Cappie's forceps, however, are certainly excellent instruments, and ought to be possessed by practitioners. The blades are of the form and proportions of Dr. Simpson's long forceps.

Dr. Campbell's Forceps are so made that the blades can be elongated in consequence of their sliding within the handles, and they can be kept at any convenient length between the two extremes by means of screws. This kind of forceps can thus be made into either long or short forceps, and are very easy to carry in the pocket.

Another kind of Forceps, intended thus to be long or short, and very portable, are those constructed by M. Charriére. Blades of any length and shape can be attached to the same handles. All these contrivances are chiefly to enable the practitioner to introduce the upper blade easily. It enables one to carry this blade over the head of the child without disturbing the position of the woman. But this is not the only thing which is needed : when you have thus so easily introduced the upper blade you wish to fasten it to the handle, which you find you cannot do on account of its length, unless the woman be placed on the edge of the bed. Dr. Simpson's Forceps obviate this difficulty, for their handles are so short that they can be placed downwards or upwards, or in any direction, without interfering either with the bed or bed-clothes. Be careful, therefore, how you introduce a blade alone, with the hope of fastening to it a handle too long.

It becomes evident to us every half-year that the use of the Forceps is increasing. The improvement in the construction, and the increased skill in their use warrant us in approving of this change. In numerous cases the outlet of the pelvis is too narrow to allow the head to descend easily. Probably it is a first case, the womb is wearied with its long continued efforts, and, just when it ought to be coming to the end of its work, it meets with a narrow outlet. Now comes in the great value of the forceps, and, if the ear can be felt, we need not fear either injuring the face of the child or the parts of the mother. For fear, however, of compressing the head of the child too much,

Dr. Swayne, of Bristol, uses a pair of Forceps which do not close so much as usual. This gentleman says that he is so convinced of the safety of the forceps, that he now generally uses them when the child's head has been arrested in the cavity of the outlet for three hours.

In cases of contraction of the brim of the pelvis we hope that both the use of the long forceps and craniotomy will be avoided till every effort has been used to bring away the child by the more simple operation of Turning. In seventeen cases reported by Dr. M'Clintock, of Dublin, in which turning had been performed in consequence of a degree of contraction of the brim, nine children lived after the operation, and eight were born dead. He considers that although it is better to bring on premature labour in cases of deformity, when we have the choice, the operation of turning is much preferable to craniotomy when the deformity is at the brim and not of a very severe kind. When we possess so easy and safe an operation, we do not see the use of Dr. Barnes's recommendation to try the long forceps first. We confess that we dislike the long forceps altogether, and shall always avoid it when we can turn instead. In turning we are obliged sometimes to exert some degree of violence in extracting the child in these cases, but we have never seen any bad effects on the woman. It is wonderful what *ill-usage* the womb will bear in the hands of an experienced practitioner.

Dr. Figg, who has perhaps resorted to Turning oftener than any other man, in proportion to his number of cases, gives us a good hint or two about bringing down the legs. We will give his own words :—"If the fœtus occupy the first or second position (Naegèle), I seize the posterior foot, which holding the anterior one in its fold, invariably secures the descent of both. If the position be the third or fourth, I secure the distal, and not the proximate foot, traction on which inverts the child on a diagonal axis, rather than the longitudinal one of the former case. In my early attempts on these anterior positions I satisfied myself with the first that met my grasp, only to ensure the complication of the proximate foot and the head occupying the pelvis together, while the distal one and fœtal trunk were yet in the perpendicular. Should the distal foot, in the first instance, prove beyond my reach, I avail myself of the proximate one, producing traction on it, not with the view of thereby completing the version, but so as to exercise an influence on the other, and bring it into the vicinity of my hand."

That obstetric spear called a Perforator, always seems to us to be a clumsy and frightful-looking instrument. The perforator of M. Blot is ingenious. It consists of two superposed blades, shaped somewhat like the ordinary instrument, each of which is sharpened on one side only, and so arranged that, when shut,

the blunt side of one projects over the sharp edge of the other. By pressing a small handle attached to the instrument, the blades are separated, and both their cutting edges set free, so that perforation can be easily performed.

Mr. Higginbottom, of Nottingham, continues to protest against the use of Alcohol in the treatment of disease. Even in Post-partum Hemorrhage he declines to use it. In a case of hemorrhage related in the British Medical Journal, his patient was fast sinking, notwithstanding the use of alcohol, but rapidly changed for the better after vomiting induced by means of an emetic dose of ipecacuanha. Mr. Higginbottom has not only faith himself in the act of vomiting checking hemorrhage after labour, but he has communicated his convictions to a friend of his in Nottingham. Both these gentlemen, who are we believe in extensive practice, and well worthy of confidence in anything they say, feel more faith in the patient vomiting than in giving alcohol, after other measures have failed. Mr. Higginbottom says that his friend never knew the plan to fail in checking the hemorrhage, and "from the confidence he has in the remedy, he never fears the result in the worst cases." We have the greatest respect for this opinion, because we believe that the arrest of hemorrhage by means of syncope is a wise provision of Nature, and to check hemorrhage by nauseating doses of ipecacuanha is only imitating what Nature does when left to herself. We think, therefore, that Mr. Higginbottom's principle is good. We remember an interesting paper about twenty years ago, written to show the good effects of nauseating doses of ipecacuanha in bleeding from the lungs; and recollect the remark that blood always coagulates most rapidly when drawn from a patient in a state approaching syncope. This physiological principle alone, therefore, would assist in stopping the the bleeding from the womb. But we think that this act of nausea or vomiting would be a dangerous thing to trust to in *reviving* a patient from a state of syncope. The principle of stopping hemorrhage by nauseants and by vomiting is one thing, and the reviving of a patient from her state of exhaustion is another thing. Let us not confound the two and say they are one principle. We are aware that when a patient faints, the *vis a tergo* of the circulation is taken off, and likewise, what blood does escape from the vessels, more readily coagulates in the womb, and thus arrests the bleeding, but we think that we should not be warranted in abstaining entirely from stimulants in order to revive the action of the heart. We consider therefore that Mr. Higginbottom carries his principle too far: alcohol will certainly not arrest hemorrhage, but will rather increase it; yet nausea and the act of vomiting might not be a safe remedy to try when the patient was already at death's door

from flooding. Our own method of treating such cases is a modification of Mr. Higginbottom's. We try every means to arrest the flooding, such as promoting the contraction of the womb by compression, by the application of cold, by secale cornutum, by plugging if circumstances permit, and even by the assistance of opium, which often acts like ergot of rye in such cases. We defer giving alcohol as long as possible, knowing that it aggravates the flooding, it does more, it prevents that state of approaching syncope which assists materially in checking the hemorrhage. A state of syncope, we maintain, most rapidly stops hemorrhage, and therefore, while using all the means in our power to stop the bleeding, we allow the patient to approach the state of syncope as nearly as we dare before giving stimulants, and we then administer them as sparingly as possible just to keep the circulation going. To abstain from them altogether we think dangerous. Mr. Higginbottom's principle, however, is good, and we cannot condemn too much the great use of alcohol which some practitioners administer so recklessly in these cases.

We have not yet sufficient data to judge of the influence which Chloroform possesses in aggravating, or not, Uterine Hemorrhage. An interesting paper by Dr. Skinner, of Liverpool, induces us however to make one or two remarks. This gentleman gives a case by Mr. Spender, and both are of opinion that chloroform does not render a patient more liable to hemorrhage. The probability is that it would make the patient more liable to flood under certain circumstances, and we would warn our younger brethren how they use this remedy when the uterus is already deficient in energy of action. There is no doubt that flooding generally arises from the want of contraction of the womb after labour. In a case, however, where chloroform is given, it is generally because the womb is acting powerfully, and has power enough and to spare. In this case chloroform will do no harm; there will be power enough, when the child is born, for the womb to contract in spite of the chloroform which has been given. But where the womb is feeble, and only just able to accomplish its work, we should think that chloroform would be the very thing to keep the womb open and uncontracted, thus giving rise to hemorrhage. Let us be careful, therefore, how we use chloroform when the womb is feeble, and if we do so let us anticipate its sedative influence, by giving a dose of ergot of rye before the completion of the labour.

Dr. P. M. Latham, in his 'Remarks on the Practice of Medicine' says: "Pain may kill, it may overwhelm the nervous system by its mere magnitude and duration." He illustrates the opinion by giving a case of painter's colic, and another of the passage of gall-stones, both of which died from the violence

of the pain. He gives another case, from Dr. Merriman's 'Synopsis of the Various Kinds of Difficult Parturition,' which died from the womb continuing to aid violently in its vain attempts to expel a polypus after the birth of a child. Speaking of this case, Dr. Gooch says that it shows that "mere pain can destroy life." Pain can produce the cold skin, collapsed features, and failing pulse. We make these remarks in order to bring to the notice of our younger readers a hint which we would advise them to observe. When a woman has just been delivered, and is quite exhausted, either from the previous efforts of the womb, or from excessive flooding, never allow her to remain in pain, nor do anything to increase this pain violently and suddenly, such as introducing the hand into the womb, or violently compressing the abdominal parietes. Another violent increase of pain may just extinguish the last remains of life, and you may think that it is owing to some internal hemorrhage, or some rupture of the womb. But it is this sudden and violent call on nature which completely extinguishes the last remaining spark of life.

The nature, causes, and treatment of Childbed Fever are becoming more and more studied by the profession at large. Every half-year we now have to notice some interesting and even startling facts respecting its origin in different places. In former years it used to be unaccountable how an epidemic of puerperal fever existed in a neighbourhood, and how these cases generally confined themselves to the practices of one or two practitioners, whilst the rest were free from its terrible ravages. But lately we have been enabled to trace its origin to either bad surgical cases attended by the accoucheur, to post-mortem examinations, or to poisonous air in the immediate neighbourhood of the lying-in chamber. Having traced its origin to surgeons going direct from bad surgical cases or post-mortem examinations to women in labour, we have warned our professional brethren to be careful in such matters. We may probably have incurred some disfavour from surgeons on account of our remarks, but we have not said nor written one-tenth part of what Dr. Copland says on this subject in his article on Puerperal Fever.* We should astonish some of our medical brethren if we were to give even the words of Dr. Copland on this subject. As a specimen of what is written in this celebrated work we will just give the following quotation. "If any would prefer the weight of authority to the overwhelming evidence now adduced, the names I have enumerated would satisfy him, at least they are quite, nay, more than sufficient, to warrant him in acting with caution, and to render him criminal in the eyes of the con-

* See article Puerperal Fever in Copland's Medical Dictionary, Vol. 3, part i, p. 505.

siderate part of the community, if he should ever be the medium of transmitting contagion and death to those who confide not only in his science, but also in his humanity, and in the incalculable value attached by him to human life. Dr. Holmes has forcibly and eloquently brought this much neglected subject before the profession, and he thus concludes:—'It is as a lesson rather than as a reproach that I call up the memory of those irreparable errors and wrongs. No tongue can tell the heart-breaking calamity they have caused: they have closed the eyes just opened upon a new world of love and happiness, they have cast the helplessness of infancy into the stranger's arms, or bequeathed it with less cruelty the death of its dying parent. There is no tone deep enough for regret, and no voice loud enough for warning. . . . . God forbid that any member of the profession to whom she trusts her life, doubly precious at that eventful period, should hazard it negligently, unadvisedly, or selfishly.'" Dr. Copland in another part says: "An obstetric practitioner should not make an autopsy of a case of puerperal fever, or of erysipelas, or of peritonitis, or of diffusive inflammation of the cellular tissue, or of disease occasioned by the necroscopic poison,* nor even attend, or dress, or visit any of such cases without immediately afterwards observing the precautions just stated, and allowing two or three days to elapse between such attendance and midwifery engagements, or visits to puerperal females. . . . . Whatever indulgence may have hitherto been extended to those who have been the ignorant causes of the misery disclosed by the above statements, cannot now be expected, and ought not to be granted; for the practitioner is now too well informed, or at least the sources of information as to this matter are too open to him to be longer ignorant, that this most deadly of our domestic pestilences is conveyed from the infected to the healthy, chiefly and most frequently by the accoucheur, when it occurs without the walls of a Lying-in-Hospital, and that ignorance of, or inattention to this fact, already not unknown to the well-informed part of the community—this flagrant neglect of what we owe to those who confide in us, and to society in general, to whom we must look for consideration and esteem, will be no longer viewed as a *misfortune*, but will be more justly considered a *crime* of no small magnitude."†

We make these extracts in order that our readers may more fully understand the force of the facts brought forward by Dr. Semmelweis, alluded to in our last Commentary, and since then again described by this writer. The reader will find a full account of his views in the present volume of our Retrospect,

* See article Poisons in Copland's Dictionary, § 487, et seq.

† See Copland's Dictionary, article Puerperal Fever, Vol. 3, part i, pp. 508, 509.

and we will therefore only give an epitome of what he says. He maintains "that puerperal fever is, without any exception, a fever of absorption, arising from the absorption of decomposed animal organic matter; the first consequence of absorption is decomposition of the blood; the consequences of decomposition of the blood are exudations." Sometimes the posion is generated in the patient herself, at other times the poison is communicated to the patient from a post-mortem examination by the hand or finger of the practitioner. Another source of poison is decomposed animal organic matter generated by sick persons in various diseases. In the Vienna Hospital it was produced by the oozing out of matter from a medullary cancer of the womb, and at another time from the effluvium of a carious knee. In the Rochus Hospital in Pesth, "it was the most heterogenous surgical diseases, in which running sores produced puerperal fever." "The conveyer of the decomposed animal organic matter is the finger of the examiner, the hand of the operator, surgical instruments, bed-clothes, the atmospheric air, sponges, the hands of the midwives and nurses which come in contact with the excrements of patients dangerously ill, and soon after with women either in labour or who have just lain in." "The place where the decomposed animal organic matter is absorbed, is the inner surface of the uterus, from the mouth of the uterus upwards." "The time when infection most often occurs is during the opening of the uterus, for then, not only the inner surface is accessible, but also the necessity to probe it with the finger, in order to ascertain the position of the child, is most frequent. As a proof of this, at the time before washings with chlorine were practised, all those women with whom the period of the opening was protracted beyond the usual time, died almost without exception of puerperal fever." Whenever the parts become denuded of mucous membrane they readily absorb poison. Hence, if a woman be in poor health, and the mucous membrane be repaired slowly, the atmospheric air impregnated with poison from without may penetrate into the genitals and thus cause the disease. The result of all that we have written is, that as much as possible all Accoucheurs ought to abstain from meddling with bad surgical cases and post-mortem examinations, and when they are obliged to combine this kind of Surgery with Midwifery practice, which we maintain they ought not to do, they should always wash their hands in chlorine water, which ought especially to be provided ready for them in every Hospital. No Hospital Surgeon ought to leave his hospital without invariably washing his hands in this solution, which Dr. Semmelweis has discovered to be an antidote to the poison. If Surgeons will take this simple precaution we shall hear but little of this dreadful disease. As an addi-

tional precaution we think that they ought to have an hospital dress, and never attend a woman in labour without first changing this dress for another. Decomposed organic animal matter is known to cling to the walls of an Hospital, and to the clothes and dresses of nurses and surgeons, in a way which would hardly be believed. If you remain a short time in a dissecting room your dress will be rapidly covered with the organic particles—you will breathe them—nay, you will excrete them, for your urine and fæces will be impregnated with them in a way which every medical student has observed. We are perfectly justified therefore—nay, we ought to be thanked for it—in raising our warning voice in these matters. "M. Chalvet, in his interesting researches into the causes of hospital insalubrity, has shown that the analysis of the air in the wards of St. Louis furnished him with a large quantity of starch-corpuscles; and that a large quantity of putrescible organic matter was collected in the bed-curtains, and on the walls, windows, &c. He also showed that the linen, as returned from the laundry, was still tainted with organic detritis, linseed, and spots of various kinds. May not linen thus stained with altered pus and blood be the vehicle of the contagion? We know that vaccine matter may be preserved on cotton or linen threads. M. Chalvet has also shown that the vapour of water condensed in the neighbourhood of a suppurating focus is strongly charged with irregular corpuscles, resembling dried pus. Eiselt, of Prague, also asserts that he has seen small cells like those of pus spread through the air of a ward in which an epidemic of purulent ophthalmia was raging. On this point M. Chalvet says:—'The atmosphere of a hospital is no longer a vague expression. The air of it differs essentially from pure air. In 1860 I witnessed the experiments of M. Réveil, and recognised in the most positive manner the presence of organic corpuscles in the apparatus constructed by that skilful chemist. We then observed chiefly cells and the *débris* of epithelial cells; corpuscles of divers forms, which became yellow under the action of nitric acid; and bits of charpie charged with these corpuscles. Under like conditions he saw, with M. Kalhmann, in the laboratory of M. Réveil, organic *débris* incrusted with a granular substance, which gave the reaction of copper. The dust thus observed was collected in an ophthalmic hospital, where sulphate of copper was largely used as a caustic. Dust, collected by dusting the walls of the ward St. Augustine at St. Louis, furnished me with 36 per cent. of organic matter. At another period, in the laboratory of M. Réveil, dust collected from the same quarter yielded 46 per cent. of organic matters, which consisted in large part of epithelial cells, and yielded a horny smell when calcined. When wetted, the dusty powder quickly gives off a very fœtid smell.

Doubtless, the thick layer of dust covering the walls of our old hospitals may produce gases capable of favouring the transport through the air of corpuscles, which perhaps play a very important part in the air of hospitals.' May not, asks M. Trousseau, considerations of this kind furnish us with useful information regarding the etiology of diseases? There may, perchance, exist in the air at a given moment morbid germs, which will some day enable us to seize upon the cause of endemic and epidemic diseases. 'These germs will not be developed as readily in all patients, because the conditions of their reception vary infinitely. Some patients, like certain earths, will not receive certain germs. The wind may spread the same seed widely over a country, and yet the grain will not spring up everywhere alike. Here the soil may be too wet; there too dry; here other germs have grown up, and stifled the new seed. Just so is it with morbid germs and ferments. They, individually, require conditions favourable to their development.'"*

We acknowledge that many eminent writers and practitioners have differed from the opinions which we have already expressed. One of the latest opponents of these views is Dr. Denham, the eminent Master of the Dublin Lying-in-Hospital, whose paper the reader will find in this volume. But we contend that all, or most of his arguments (which the reader will see for himself) only go to show that the cases which occurred in Dublin, proceeded more from some epidemic than from contagious causes. But although we have so many facts to prove the existence of contagions, we can never say that an epidemic is not produced by similar morbid contagions—the particles of poison may be communicated to the patient through the medium of the air in this instance, rather than through the medium of the nurse or the medical practitioner. We have for years weighed all the cases which we have read, and come to the conclusion that, to say the least, a great many cases of puerperal fever are communicated to women by the medical practitioners themselves, in the way which we have already mentioned. Dr. Denham even acknowledges that the mortality in the Vienna Hospital, which was attributed by Dr. Semmelweis to the students examining women in labour just after coming from the post-mortem examinations, might "with much justice and truth" be so attributed, "if the students had been engaged in the post-mortem examinations of puerperal women;" and in such cases, he says, that the purification of the *clothes* would be quite as necessary as that of the hands. He doubts, however, that the cases in the Vienna hospital were attributable to the causes mentioned by Dr. Semmelweis. There may be truth on both sides of this question, but if there be any doubt whatever, we maintain that the women

* British Medical Journal, July 12, 1862, p. 39.

ought to have the benefit, and not to have their lives risked by medical practitioners and nurses going direct from bad surgical cases and post-mortems, and making examinations without washing their hands in chlorine water, and changing their clothes entirely.

In those cases of Puerperal Fever which are suspected to arise from the Absorption of Pus, we can recommend the free exhibition of tannin or gallic acid. Secondary abscesses in the joints and other places will occasionally occur for some time afterwards, and there is little doubt but that these medicines exert some remarkable power in arresting these deposits. You may occasionally see, with the naked eye, the effects of these medicines on the blood-vessels of the surface of the body. Take, for example, a bleeding cancer of the female breast, and watch the effect of a few doses of tannin or gallic acid—they arrest the hemorrhage and the morbid secretion: cease from giving them and the oozing of blood and discharge rapidly returns. There is some remarkable styptic power in these drugs, which arrest both internal and external formations of pus and other discharges. In two cases reported by M. Woillez the effect was good; nine grains of tannin were given daily. We frequently give as much as ten grains of gallic acid three or four times a-day, in severe cases. This may be continued for many days, and then five grains for each dose may be continued for many weeks. We have never yet seen any bad effects from a long continuance of these doses when given in cases of hemorrhagic, purulent, or mucous discharges in the female.

The most common and the most troublesome of all the ailments of women, are Prolapsions of the Womb and Vagina. These are greatly aggravated after the perineum has been ruptured. They want the usual support of the perineum. To restore the perineum to its usual usefulness, you must pare its edges down towards the anus, and unite the deep edges by metallic sutures introduced deep in the structure, and much deeper than what would be required to unite the skin. You want to procure union of the deep parts. But the relaxed mucous membrane of the vagina often adds to the evil. You must, then, excise a portion of the vaginal membrane and try to produce union as usual by deep sutures.

When we have hitherto had occasion to introduce certain drugs in the form of Pessaries and Suppositories, we have generally mixed them with wax and oil or lard. It is now suggested that the butter from the Theobroma cacao nut be used to hold the drugs together. It has the consistence of wax when cold, but soon becomes liquid when introduced into the vagina. Dr. Tanner recommends that four parts of the cacao butter be mixed with one part of olive oil, or glycerine. The drugs can easily

be mixed with these ingredients, the proportions to be varied a little according to circumstances. Boxes of these pessaries can now be procured of Mr. Cooper, 26, Oxford street, London.

Some very neat instruments have been invented for Dividing the Os and Cervix Uteri in cases of Dysmenorrhœa and other uterine affections. Dr. Simpson introduces his instrument and cuts as he *withdraws* it, enlarging the wound downwards to any reasonable extent. Dr. Coghlan introduces his knife and cuts as he proceeds upwards. We think that Dr. Simpson's instrument is the safer and better of the two. It is introduced with tolerable facility and *cuts downwards* with more safety than one which cuts as it is pushed upwards. Messrs. Whicker and Blaise have invented another kind of Hysterotome, which operates on Dr. Simpson's principle—it cuts as it is withdrawn. You introduce a fine straight probe-looking staff, having two fine lancets at the end, which can be projected from their groove at any angle. The instrument is first introduced, and then these lancets are made to project out, more or less, and as you withdraw the instrument the desired incisions are made on each side of the cervix uteri. It is an ingenious invention, but we do not see its advantages over Dr. Simpson's. When you have thus enlarged the uterine orifice, it is necessary to prevent the wounds healing by the first intention, otherwise you might have even a more rigid and contracted orifice than you had before. This may be done by various plugs, such as leaden ones, or those made of gutta percha, or sponge covered with wax in the old form of tents. Dr. Barnes's water dilator will we suspect now come into use in these cases of obstruction, either to dilate the os and cervix without incisions, or after incisions have been made. It is pitiable to see cases of uterine obstruction occurring month after month in young ladies, without any attempt being made to relieve them. The cervical canal, in such cases, almost bears the same relation to the uterine glandular apparatus that the ductus communis choledochus does to the liver; we all know what pain occurs when inspissated bile cannot flow down this tube. The cervical tube in the female is in some measure an excretory tube, belonging to a large gland, and its closure or partial obstruction gives rise to symptoms in the female which are often entirely overlooked, or when suspected, not attended to, on account of the trouble involved to both patient and practitioner. We are glad therefore to see such attention paid to instruments which are to relieve these painful affections.

Dr. Sloan, of Ayr, suggests that we should make use of the stem of the sea weed, called Sea Tangle (Laminaria digitata) for Tents to dilate the os and cervix uteri in cases of Dysmenorrhœa, and also to dilate other parts when tents are required for the

purpose. Dr. Sloan has kindly sent us a specimen of this sea weed, and we have been delighted with the way in which it swells when immersed in water, although we have not yet used it in practice. It is evident, however, that it may be made most useful in uterine cases. You may dry a long piece of the stem and make it into a very small bougie, and you may introduce this into the cervix uteri, where, by the moisture, it soon swells to the size which it possessed when picked up moist on the sea shore. Every practitioner should make a collection of these sea tangle stems during his next sea-side excursion, and take them home to dry. They dry into a remarkably narrow compass, and may be used in a variety of cases, as in tents to dilate sinuses, &c. We suspect that this simple instrument will supersede sponge-tents and other such like means of dilatation. We refer our readers to Dr. Sloan's paper in the body of this volume, where several cases are given in which it has been used with success.

The Injections used by females are often useless; and the Instruments for injection are either objectionable for use in their own hands, or cumbrous and inefficient. Sulphate of zinc is going out of notice. Solutions of nitrate of silver are very useful when applied by the medical attendant, but not by the patient. Mr. Ellis, of the Chelsea Dispensary, recommends alum and oak-bark, or alum and tannin, which can always be obtained readily. We have found that a solution of tannin alone (about ʒj.—ʒij. of tannin to ℔ss. of water) is very beneficial in cases of mucous discharges. Every practitioner, however, has his own favourite injections; the difficulty is how best to apply them. For the medical attendant we think a good way is for him first to introduce a small glass speculum, and up this to push his sponge or brush well filled with his injection: he now withdraws the speculum *over the handle* of the brush or stick which holds the sponge. This leaves the sponge or brush at the top of the vagina; none of the fluid has been discharged as it ascends, but it will of necessity be discharged as it is pulled out, thus wiping out the whole canal. But what is the best way for the patient to wash out her own vagina either with water or some fluid injection? We will offer a suggestion which we have improved upon, from reading an account of Mr. Ellis's syphon, which, however, we have used for several years:—Take a long bit of india-rubber pipe, or gutta percha, of small diameter. To one end (A), fix a cork or small stop-cock; at about a foot or more from the other end (B), fix another stop-cock. Now fill the space between the two stop-cocks (A B) with water, or any injection which you wish to use, and put the first end (A) into a bowl of water holding the injection to be used, making it into the small branch of a syphon. The other end (B)

is now to be introduced by the patient up her vagina in the horizontal position—it forms the long branch of a syphon. She now turns the two stop-cocks, and the syphon carries all the water or lotion to the very top of the vagina, and it runs out again upon a thick woollen cloth or into a vessel. Women cannot use syringes, nor brushes, nor sponges, but they soon learn to use this simple syphon, and it is very pleasing to see the good effects of tannin and other injections when regularly and well applied by women themselves daily. The reason why we so often fail in these vaginal cases is, that our orders are not carried out unless we do them ourselves. We humbly maintain that our own tube with the two stop-cocks is a great improvement on Mr. Ellis's tube, with his tea kettle to fit the extreme end of the tube. It will be at once seen that in order for our tube to act well, it must be filled with water between the stop-cocks in order that when the patient is ready for the douche the syphon may also be ready, and she may have nothing to do but to turn the cocks. By this simple manipulation she may inject many pints. There is one thing however to be remembered in this process. When the woman has pushed up the tube and keeps it there, she is blocking up the end with a fold of her own vagina, and the water will not run out: she must therefore *withdraw the tube for half-an-inch* and this will liberate the tube from its blockage, and the fluid will run off rapidly. Instead of stop-cocks, very simple substitutes may be made by using a *cork* at the end of the tube A, and tying a bit of string round the tube at B. A most useful instrument can thus be extemporised for a mere trifle.

A very difficult question sometimes arises during the operation of Ovariotomy, and it may arise during other internal operations, viz., what to do with bleeding vessels, either belonging to the peduncle of the cyst, or to the omentum. We hope that the use of the common ligature will die out, and that the metallic ones will be substituted—we threw out a hint in our last Commentary, made by Dr. Robert Tanner, of Ledbury, that the actual cautery should be more frequently relied upon, in the same way that *sow gelders* apply it. We then wrote as follows :—"These men make a small wound in the abdomen, draw the ovaries through it, and taking hold of the peduncles by a clamp, they *sear off* the organs with a hot iron made rather sharp ; they then thoroughly sear the maternal portion, and loosen the hold of the clamp a little to see if any oozing take place, if so, they sear a little more till all oozing cease, and then return the parts into the abdomen, closing the abdominal wound by a stitch. If this process would answer in the human female, it might be useful to apply Mr. Ellis's electric cautery." We still think this process might be adopted more frequently, and

we are glad to see that Mr. Clay, of Birmingham, has adopted the principle in one case, where the omentum had become extensively adherent to the cyst. "The omentum had been compressed between the tumour and the abdominal parietes, and had during the previous inflammatory attacks acquired the most intimate adhesion to both surfaces." It was consequently extensively injured during the operation, and the numerous bleeding vessels became a cause of great anxiety. Mr. Clay seized the bleeding omentum with a kind of clamp, and separated the wounded portion by the actual cautery. The blood-vessels were too numerous to be safely secured by ligatures, and to have returned these ligatures into the abdomen would have been highly dangerous. The *searing* of the omentum, however, completely succeeded without any ligature. Why cannot we extend this operation to the peduncle, like the operation of the *sow gelders?*

In our former Commentary we referred to cases in which bullets and wire ligature had remained in parts without exciting any particular inconvenience, and we think that comparatively much less, and even no inconvenience, would result from tying the bleeding vessels in the ovarian peduncle with Metallic Ligatures, and returning them into the abdomen. They would not be able to excite the suppurative inflammation which is so dangerous from the common ligature. Mr. Wells, in one of his cases, stopped the bleeding from several vessels of the omentum and mesentery by *torsion,* and other vessels of the omentum (which had been torn) were secured by ligatures of fine silk. The ligatures were cut off close and returned with the omentum, and yet the patient did well. Perhaps it may be said, if she did well what more could you desire? We answer, that to return any such ligature into the abdomen, whether attached to the omentum, to the mesentery, or to the peduncle of an ovarian tumour, is at the best a hazardous proceeding, and may be avoided by the substitution of metallic ones. We are glad to see that Mr. Wells, in commenting on a case published by Dr. Tyler Smith, which we will allude to immediately, intends on the first opportunity to use the wire ligature for the vessels of the peduncle. We have suggested this improvement in two of our former Commentaries, but have not yet seen it carried out. We may hope soon to see a case of Mr. Wells's in which he has used the wire ligature instead of the silk or thread. Surely this will be a much safer method than tying the vessels with silk or thread and returning this kind of ligature into the abdomen, which however, Dr. Tyler Smith has done with success. In Dr. Tyler Smith's case he tied the peduncle with silk, and after cutting off both ligature and peduncle as close as possible, they were returned into the abdominal cavity without any ill

effects. On this case being read, Mr. Wells said that in a suitable case he should be encouraged "to tie the vessels only (not the entire peduncle) with wire, to cut off the ligatures short, return the peduncle, and close the wound." We are glad to see this opinion expressed by so eminent a man, and feel gratified that our own humble suggestions made some time ago have a prospect of being realised. Let us go a step further, and again suggest that the *searing* process proposed by Dr. Robert Tanner, such as we have mentioned to be used by sow gelders, and which has lately been used by Mr. Clay of Birmingham, for the bleeding vessels of the omentum, may come into use.

Mr. Spencer Wells has invented an improvement in the Trocar and Canula used in Ovarian Dropsies. In his instrument the trocar, as well as the canula, is hollow, and sharpened at the end like a tubular needle. The sharp hollow trocar is made to be pushed out of and withdrawn within the hollow canula, the same as a lead pencil is pushed out of and withdrawn within its case, by means of the thumb moving a small button or nut. You can thus with the same hand, push out the hollow but sharpened trocar from its tube, perforate the cyst, and withdraw the trocar into its canula again. To the end of the canula is fastened an elastic tube which can be made into the long branch of a syphon, the short branch being in the cyst. Thus you drain the cavity of the cyst of its contents by a self-acting syphon; and you can apply a syringe to the long branch of the syphon if more suction power be wanted. As the cyst becomes emptied, it can be tied on the short syphon, and thus drawn outwards. On reading an account of this invention, it struck us that it might be improved by our being able to lengthen the short branch of the syphon at pleasure, so as to drain to the very bottom of the abdominal cavity. This cannot be done by the instrument of Mr. Wells without turning the patient almost prone, so as to tilt the fluid towards the canula. If the short branch of the syphon could be pushed downwards and inwards as the level of the fluid becomes lower, you might evacuate the cyst much better than is sometimes done. The same method could be applied to collections of water in any other cavity.

Dr. Aveling has invented a Polyptrite to take away Polypi of the Womb. "It is consists of a hook, a slide, and a screw. In using the instrument the hook alone is first passed over the neck of the polypus; the slide is then pushed up as far as it can be made to go by the hand; and then, by means of the screw, the operation is completed by forcing the blunt blade of the slide into the concavity of the hook, and through the neck of polypus." No hemorrhage follows the operation. We think however, that there are very few polypi whose peduncles cannot in some measure be grasped by the two first fingers of the left

hand, while with scissors, or a knife, whose cutting edges are nearly at right angles with the handles, you can *nibble* through the peduncle. In such a case you must pull down the peduncle and the part of the womb to which it is attached, so as to get it as much as possible within reach, and even within sight. In these cases the womb will bear almost turning inside out without danger, provided you take care to return the inverted portion before it becomes grasped by the muscular fibres situated towards the cervix uteri.

You often have females applying for relief from various Neuralgic Affections of the hips, thighs, and lower parts, arising from uterine or ovarian congestion, or disease. You try all kinds of sedatives and other treatment, but fail in giving relief. In such cases the galvanic chain may be of great use, but you will often find that the *inverse* current succeeds better than the *direct* current, so that both forms must be tried. Mr. Lobb goes so far as to say that it is a rule that in uterine affections the inverse current succeeds the best when the uterus or its appendages are primarily affected.

The interesting papers of Mr. Greaves, of Manchester, lately published, on the Asphyxia of Infants still-born, reminds us of some original views of our own, published above twenty years ago in article 59, of *Retrospect*, vol. 1; and we again bring those views forward because we do not feel inclined to be deprived of what credit they are worth. Commenting on a good paper by Mr. Paterson, of Aberdeen, on the action of ergot of rye, we wrote as follows:—"We must beg to disagree in some opinions which the author of this otherwise excellent paper advances with respect to the action of the secale on the child. He thinks it acts perniciously, owing to the uninterrupted pressure of the uterus upon the brain of the child, or to the premature detachment of the placenta. Now we know that the head of a child may be pressed upon very severely for a considerable period, and yet the child will generally be born alive, if the pains of the uterus are *not uninterrupted*. We have had numerous cases of this kind, where the head has become impacted in the bones of the pelvis, by the severe action of the uterus, and yet, if the pains abated ever so little, (and we never knew a case of labour where the pains were uninterrupted except from the effects of ergot) the child would be born alive: and therefore we are not warranted in supposing that pressure upon the brain of the child to the extent which we may suppose the womb can exert, is the cause death. Neither can we suppose that a premature detachment of the placenta so often takes place while the child is in the utero: in this case we should often have copious flooding either before or after the birth of the child. We might not, indeed, have much flooding externally whilst the head of the

child firmly blocked up the external passage, but the uterus would probably be unusually distended with coagulum, which would be discharged afterwards: whereas how often does it happen that the child is still-born from the effects of ergot, and no hemorrhage whatever follows the expulsion either of the child or placenta. We should rather attribute the bad effects of ergot upon the child to the following cause: and we may be permitted to form an opinion after a very extensive practice in midwifery for the last ten years. In order that ergot should act perniciously on the child, it is in the first place necessary that its action on the uterus should be *uninterrupted*. We have seldom or never witnessed any bad effects on the child when the patient had some *rest between the pains*. This is a remarkable fact, and when pointed out will no doubt be corroborated by most medical men of experience. We may give secale with perfect safety both to mother and child, if we give it in that moderate dose (as from 20 to 30 grains), which shall not produce an *uninterrupted* action of the womb. But as certainly as we give it in an immoderate dose we shall kill the child, unless it be expelled very shortly after the violent action of the womb has taken place. If the os uteri be fully dilated and the pelvis sufficiently capacious we may give ergot in much larger doses with impunity, because the violent action of the womb is modified, or as it were, counteracted by the rapid descent of the child. But what is the reason of all this? It has never yet been satisfactorily explained in any publication with which we are acquainted. We would humbly suggest that it is owing, not to the pressure of the womb upon the child; not to the entanglement of, or pressure upon the cord; not to the premature detachment of the placenta—but simply to the long-continued stoppage of the circulation through the vessels of the womb, and consequently to the want of proper oxidation and decarbonization of the fœtal blood: and this view seems to be quite confirmed by all the facts which can be advanced to support the opposite opinions. By the continued, uninterrupted, and violent action of the uterus, the circulation is almost completely impeded, and the child dies in the same way and from the same cause as an adult dies when deprived of atmospheric air. It will survive a certain time even when the uterine circulation has been thus nearly completely interrupted, but it cannot survive long. It will also survive if the violence of the pains abates a little, so as to give the uterus an opportunity of having its vessels replenished with a fresh supply of the maternal blood. And when we reflect upon the kind of connection which exists between the placental and uterine vessels, and also upon the kind of parietes of which the womb is composed, we can readily conceive that nothing would be more easy than to

prevent communication between the vessels of the placenta and uterus by the continued efforts of the parietes of the womb to contract. We believe that during every pain of the womb in all labours there is a short interruption to the communication between the placenta and uterus, but this is not felt by the child, because it is momentary. And if the uterus were to act without interruption in any labour, even independent of the action of the ergot, the effects upon the child would be equally pernicious: hence we see the wise provision which exists to prevent this evil, by the womb contracting and relaxing at intervals. This view is confirmed by the fact mentioned by Dr. Carriere, of Strasbourg, that during the uterine contractions the *blowing sound* produced by the flux of the arterial blood into the uterine sinuses is very much weakened or altogether suspended, and again returns when the pain has subsided. The same *blowing sound* will even continue for some time after both child and placenta have been expelled, when the uterus does not contract properly." Mr. Greaves, in his paper, publishes views very similar to our own, and we are glad to be confirmed in our opinions by a gentleman of such eminence. He says, "the phenomena of still-birth are ordinarily due to the excessive action of a cause which operates in every labour. That cause is the suspension of the communication between the maternal circulation and that of the placenta, produced (generally) by the closure of the curling arteries of the uterus by the uterine contractions." A little further on Mr. Greaves writes, "The explanation of the way in which very rapid labour becomes dangerous to the child, will also account for the alleged effects of the secale cornutum. It is asserted by some writers that this drug has often been fatal to the child: it can only have been so by causing, in accordance with its mode of action, permanent unresting contraction of the uterus, instead of the intermittent action of natural labour."

The use of Veratrum Viride seems to be increasing. Both this drug and Aconite are no doubt very powerful sedatives, and may be made very useful in arresting or checking a too violent circulation in cases of inflammatory affections. They seem to possess the power of the lancet without its lasting bad effects. But as you may bleed a patient till fatal syncope ends the scene, so you may do the same by these powerful sedatives. It may be well, however, to gain experience very cautiously with these medicines. Some diseases require the most energetic measures. Croup, for example, admits of no delay. In this disease we require a direct sedative to check the force of the circulation as soon as possible. Leeches, or the lancet, or antimony, or ipecacuanha, have been our usual remedies at first, with mercury applied by inunction. We can say that by means

of ipecacuanha and mercury we have seen cases recover which we did not expect to do so. But the mercury must be applied freely by rubbing on the skin. The digestive organs of the child will not bear the exhibition of calomel in the doses required for such a case. From inunction, however, we have few or no inconveniences. We have been pleased with the effects of the veratrum viride in some cases of croup under the care of Dr. Handfield Jones. In children about two years old the dose was two minims of the tincture every one or two hours. We believe that it differs from antimony and aconite in one thing, viz., that after a certain dose it acts as an emetic, like ipecacuanha, and thereby is not so *cumulative* as those two medicines. In one case of croup Dr. Jones thought death would take place before morning; he gave two minims of the tincture every hour, and in the morning the child was better, the stridulous respiration had subsided, the cough became loose, and the child recovered. Three cases are related in which the medicine was successful. It is a remedy like digitalis in some respects. Both of these medicines depress the circulation, perhaps, as Dr. Jones says, "by hyper-stimulation of the vaso-motor nerves. The cold face and hands and slow pulse are just such phenomena as result from stimulation of the vagi and sympathetic nerves." We can only say that the effects of this medicine seem to correspond very much with what Dr. Fleming says in his monograph on the effects of aconite, except that the veratrum viride often acts as an emetic. The only thing in which we feel to doubt the judiciousness of the treatment of these cases is, in what we should call the large and long-continued doses to children of two years of age. No doubt the medicine was attentively watched, and orders given that on the pulse being too much weakened it should be given up, and, if necessary, ammonia or some other stimulant given.

The term Hydrocephalus, or water in the brain, is often misunderstood. It may imply really the exudation of serum, or acute inflammation of the membranes, or tubercular formations. It would be better to confine the term Hydrocephalus to water or serum exuded upon or in the brain; to apply the term Meningitis to common inflammation; and Tubercular Exudation to that kind of disease which, in fact, is the most common in children, but which accompanies tubercles elsewhere, and is very different from the other form of disease, although sometimes very like it in symptoms. These diseases, moreover, require exactly opposite treatment. It is only within the last few years that British writers have drawn the distinction between simple and tubercular meningitis. M. Guersant, so far back as 1827, was familiar with the fact, that in some cases of meningitis granulations of a tubercular character were depo-

sited ; and at present, most well-informed practitioners are aware that cases of head affections in children, which seem to be common inflammations of recent date, are in fact, cases which have existed for a long time without any very decided symptoms, but suddenly become severe and fatal, from the previous development of tubercular exudation. The history of a case will often enable us to define whether it be one of simple meningitis, or tubercle, and we would just remind our younger readers to be cautious how they treat a tubercular case by depletion, low diet, leeches, &c. The young practitioner is called to a child who a few days ago was playing about, but is now rather unwell ; his pulse however is remarkably good, nay much slower than usual, but rather labouring, and every few beats there is a slower beat still. The child however complains of little, but vomits occasionally. The stomach is blamed, but the head is the cause—there is already slight pressure on the base of the brain from the exudation of tubercle, and the case is going to be fatal. Prognosis, in such a case, will perhaps save the reputation of the practitioner, if it do not relieve the patient. We make these remarks from noticing some good cases by Dr. Moore, read before the Dublin Association of Physicians. We notice that in one of his cases mercury was of great service. He gave this medicine in the form of grey powder, and the biniodide of mercury ; the 32nd part of a grain of the biniodide three times a day. On reading this case, and the use of mercury, we certainly felt doubtful whether it was one of really tubercular exudation. We have found mercury of great use in the simple meningitis of a severe character, but we do not recollect finding it useful in tubercular formations. In the exhibition of mercury to children we would recommend the ointment to be applied to the skin. We think it was Sir B. Brodie who first recommended it to be applied to the abdomen of the child, and then a flannel belt to be applied over it. The child by its own movements rubs in the ointment. We used to adopt this method in cases which could allow time, but found that it would not do when we must affect the system rapidly, as in croup. We now beg the nurse to rub the required portion of ointment on the leg and thigh of the child, and then to put on a long stocking, which keeps the ointment applied and the linen clean. The effects are very good and rapid. In cases of simple meningitis and croup it ought never to be omitted. The usual method of giving grey powder, or calomel, to children is much inferior, nay even useless.

PRACTICAL MEDICINE.

DISEASES AFFECTING THE SYSTEM GENERALLY.

Art. 1.—ON TYPHUS AND TYPHOID FEVERS, AS SEEN IN DUBLIN.

By Dr. Henry Kennedy, B.A., one of the Physicians in Ordinary to Sir Patrick Dun's Hospital, Dublin.

[At the first page of our forty-second volume will be found a previous paper by Dr. Kennedy, in which he states, that he has been led to believe, contrary to the opinion of Dr. Jenner and other pathologists, that typhus and typhoid fevers are the result of a common poison. Further experience has only tended to confirm this opinion. Dr. Jenner, of London, as all are aware, published some time ago an elaborate monograph *On the Identity or Non-Identity of Typhoid and Typhus Fevers*, in which the author came to the conclusion that the two fevers are essentially different, and the result of different poisons. This conclusion is based on 64 cases only; and as these were all fatal, it follows that his deductions were founded on a minority, and that a very small one. But the natural history of any disease should be learned from the living as well as the dead. The result of the observations of Huss (observations extending over more than twenty years) is, that the two types of fever, typhus and typhoid, are to be considered as arising from a common cause, and that in an epidemic, some cases will assume the type of typhus, some of typhoid, whilst others will assume an intermediate form, which cases it is utterly impossible to assign to either type. After giving 40 cases to support his views, Dr. Henry Kennedy observes:]

Though the details of these cases may seem to have interrupted the line of argument pursued at the beginning of the paper, to myself they appear but a continuation of it. With two points of exception they may, I believe, be taken as a fair sketch of the types of fever prevailing in Dublin within the last two and some former years. These types were the typhus, typhoid, and gastric. Leaving out the latter for the present, the reader will have observed the striking contrasts

which these cases present: we find cases of typhus in both young and old;—of typhus without spots;—of typhoid with none, with one or two, or with an extensive crop of them;—of typhus with the brain wonderfully free;—cases of typhoid, but more numerous, the same;—of both typhus and typhoid in which the state of the tongue and parts about were identical from sordes;—many cases of either type with the chest not engaged at all, or so slightly as not to call for treatment;—instances of both types with and without tympany;—cases of either kind entirely free from hemorrhage, a freedom remarkable when compared with former years;—and lastly, the modified types of fever which the present year has disclosed.

Now let it be observed that each and all of these have been dwelt on by those who argue for the plurality of poisons, and who would separate the two types as different fevers. But where, I would ask, is such a difference as would entitle them to be so considered? Not surely in those refinements of diagnosis on which so much labour has been bestowed, and by such a number of writers. When I go to the bedside and try to make them out I find them so mixed up that it is utterly impossible—at least it appears so to me—to separate them. And the difficulties are equally great whether we endeavour to keep the symptoms separate, and so make out two distinct fevers; or whether we strive to keep in one group the type of fever known as typhoid. This last point, I think, has not received the attention it deserves. Let any one take some half dozen cases of this type and just observe the contrasts or modifications they present. This has been already done in the cases detailed; and I think they may be appealed to as ample evidence of the point for which I argue. Nor am I alone in this statement; "*Sometimes,*" *says Louis,* "*the diarrhœa and meteorism were the most prominent; at times the depression of strength, delirium, spasmodic motions of all kinds; and according as one or the other was most prominent the disease had the appearance of putrid or ataxic fever; sometimes, likewise, that of inflammatory fever; in some individuals there was no delirium, or it was very slight, and, notwithstanding the most grave lesions, the calmness continued until death. Notwithstanding these different aspects the affection was constantly the same; the principal disorder did not change.*" So much for Louis, who is speaking of typhoid fever.—Vol. II., pp. 8, 9. Here is another extract taken from a lecture by Dr. Gairdner of Edinburgh, which appeared in the Lancet of July 21st, 1860. "*Nothing then can be more variable or less characteristic than the general symptoms of this (typhoid) fever. I have seen it resolve itself in ten days with the symptoms of febricula, or of a mild remittent fever; I have seen it, on the other hand, last nearly as many weeks, and pass imperceptibly into organic disease. It*

mimics, in turn, not only all other fevers, but many other general or local diseases; phthisis, pneumonia, meningitis, perhaps more frequently than most others." It will be remembered that these two writers are strenuous advocates for the essential difference between typhus and typhoid fevers. How they could make such admissions, and still hold such opinions, I leave to others to explain. Nor would there be any difficulty in giving other extracts of a similar kind. Thus, Louis' description of the state of the tongue in typhoid fever, might literally be taken as if he were speaking of typhus. It would be unnecessary to either add or detract from it. And so of other symptoms. The extracts given, however, are enough for my present purpose. They prove conclusively that fever of the typhoid type assumes many varied aspects. One says it may take on the putrid, ataxic, or inflammatory forms. The other the form of a febricula, or remittent fever; nay, even that it mimics such diseases as pneumonia, meningitis, &c. In most of these statements I can fully concur, because they entirely accord with my own experience; and would ask, with such admissions from the opposite party, what more is wanting to settle the point? or how will writers who have seen and described but one phase of fever of the typhoid type explain them, except they adopt the views of those who consider there is but one poison, which causes all the variations met with? I confess to seeing no other solution of the difficulty.

But some one will say here that I have not noticed those symptoms which are considered specially characteristic of the typhoid affection, that is diarrhœa, and the rose-coloured spots. This was purposely done; and with the object of speaking separately of the two points of exception which the fever of the last two years presented to my notice. The first of these was the very great prevalence of fever of the typhoid type. It exceeded anything I have seen in former years, as the cases detailed fully prove. And yet our city, during the same period, has been materially improved in its sewerage. Not that I have the slightest faith in bad sewerage causing typhoid more than typhus. But it looks strange that a type of fever, rare with us, should appear at a time when the specific cause of it, as many think, was being lessened. Yet such is the fact: no matter how we may explain it.

It is to the second point of exception, however, that I would more particularly ask attention, as bearing directly on the question under discussion. I mean the change of type which, within the last eight months, fever has shown in Dublin. The change at first seemed to be the gastric type; to which was shortly added diarrhœa in nearly every instance; and this latter again occurring in a large number of cases which presented all the

characters of typhus; including a dense crop of petechiæ. Some of these cases, it will be observed, have been detailed; and I know that others met with them in much greater numbers, and with exactly the same characters; that is well marked typhus with severe diarrhœa. The case of the girl Flanagan, No. 34, is worth noting; she had neither the spots of typhus nor typhoid, but she had every other symptom of the two types united; nor have I myself the slightest doubt but that Peyer's glands were affected. Did time permit, many others of the cases given would call for a special notice. But I must hasten on.

Of the morbid anatomy of those mixed cases of typhus and diarrhœa, I regret that I got only one opportunity of making an examination; and it will have been noted that the lesion found was confined to the cæcum and first part of the colon. It is specially to be observed, however, that it answered, in the most exact way, the description given by Louis of cases of typhoid fever, where there was also an affection of Peyer's glands. Nor must it be forgotten that Louis found the colon and cæcum affected in a third part of his cases; and, as it is admitted by all that the affection of Peyer's glands does not necessarily bear a relative proportion to the fever, it seems to me fair to conclude that the case given, No. 38, belonged to the typhoid type of fever; and so of cases 33, 37, and 39; all, it will be observed being well marked examples of typhus fever. If, however, my own experience be wanting, I am glad to be able to give that of my friend Dr. Gordon, who is attached to a large fever hospital, and who informs me that in the spring of the present year he met with ulceration of Peyer's glands in connexion with well marked cases of typhus fever; including a crop of genuine petechiæ. So that the fact may be looked on as absolutely established that the two types of fever existed in the same patient and at the same time; and in what might almost be called an epidemic form; so prevalent was it. Though this be the first time of the statement of such an occurrence in Great Britain or Ireland, it must not be forgotten that exactly the same has come under the notice of Huss, and is particularly dwelt on by him.

The conclusion, then, at which, after the fullest consideration of this question, I have arrived, is the same as that of two years since; but with still stronger convictions on the point. *I believe that the two fevers known as typhus and typhoid are the result of a single poison; and that no other hypothesis can explain so well all the difficulties of the case.* I consider, further, that those who hold for a plurality of poisons, are bound to explain the facts already given in this paper. They should tell us why the symptoms of those two affections so often run the one into the other; why the same type of fever, whether typhus or typhoid, presents

such marked contrasts; why typhoid may assume the characters of putrid, ataxic, or inflammatory fevers, febricula, meningitis, &c., and still be typhoid all the time; and this, be it observed, is described by those who believe in two distinct poisons. They will also have to answer the argument taken from analogy, and tell us if scarlatina affords the most marked contrasts, why fever should not do the same; also how it has happened that symptoms which one writer considers essential to the natural history of typhoid, are ignored or made little of by another. And, in the last place, an explanation must be given of what has occurred in Dublin this year—that is the union of typhus and typhoid in the same subject. Now one and all these points may be satisfactorily explained on the idea of the existence of but one poison. I confess, however, it appears to me impossible to explain them on the theory of two. But, if we admit two, why not more; for assuredly there are other types of fever just as distinct as typhus is from typhoid. And this leads me to notice the third type which prevailed this year in Dublin, and particularly amongst the middle ranks; I mean gastric fever. I hold that it is essential it should be distinguished from typhoid fever, with which it has the nearest connexion, were it for no other reason than that its treatment is very different. Several cases of it have been already detailed; but, except to notice it as a special type of fever, I am not about to speak of it further here. It was, I believe, to this type of fever that the cases given, which might fairly be called anomalous, are chiefly to be referred.

Before concluding I would make a few general remarks, of the most cursory kind, on the treatment of the typhoid type of fever; not that I have anything new to offer; but that the treatment adopted by some is not of the specific kind which this affection appears to me to require. We know that of late years anything of what would be called active treatment has been most materially modified, if not quite given up. Thus in Bartlett's work, which appeared in 1847, the measures recommended included the regular antiphlogistic treatment; whilst five years later Flint speaks of much milder measures being adopted. The late Dr. Todd, of London, we know, strenuously recommended the stimulant plan; which, it must be allowed, he carried as far as any discretion would justify; and in a published lecture of the present year, Dr. Warde, of the Dreadnought Hospital, London, has advocated the leaving the disease very much to itself. Now I mention these plans, not to criticise them; but to state that each, in its turn, will be found useful; and that no physician who has fever to treat on the large scale, will bind himself to one or the other. Every single instance must be treated by itself, and symptoms must be met as they rise. If this be done, I believe the typhoid type to be the most amen-

able of the many forms of fevers, provided it be seen in an early stage of the disease. Speaking of it as I have generally seen it, I would say it is not a fever to be left to itself; and several of the cases which have been detailed prove this; for there was no amendment till treatment was put in force: on the contrary, some of them were going from bad to worse. When then the case calls for it, and this is to be learned from the local, as well as the general symptoms, I never hesitate to have leeches applied over the right iliac region, followed by a poultice; taking care the bites do not bleed too long. A more common plan, however, is the application of a blister to the same part: nor can I doubt the great value of such means, and believe it is not as generally used as it might be. The blister may be repeated with the best results; nor should we ever forget that the local disease with which we have to contend is very apt to be slow in yielding: that a relapse may readily occur, and when this happens the disease is rendered very much more grave than it was. Our object, in truth, is to prevent ulceration; for if this once occur the chances of recovery are materially lessened. I state this because a recent writer speaks of the disease as if ulceration must necessarily take place. I believe this is an erroneous way of considering the matter; and that we can, by treatment, anticipate, and so prevent it. "*Obsta principiis*" is all important here, and a principle never to be forgotten.

Of the internal treatment I have had no occasion to change from what was spoken of in the former paper. As an astringent I find the dilute sulphuric acid, in the proportion of one to three drachms to the eight ounce mixture, by much the best remedy. No other of the class of astringents seems to me to act at all so satisfactorily; and it can be modified, with the greatest nicety, to the demands of each particular case. I have often seen medicines, such as chalk, gallic acid, lead and opium, unavailingly used; and then from the moment this acid was given the patient began to amend. But it is not to be used without discretion; for it may check the diarrhœa too suddenly, and the chest or brain may so become engaged: hence, it is best to begin with a moderate dose, and increase if the necessity arise. The rule is that the diarrhœa is to be gradually lessened; not suddenly stopped. In mild cases I find the acid infusion of roses a very suitable medicine; and, when there is pain, from two to six drops of laudanum, in each dose of the mixture, commonly answers well. The sulphuric acid, I need scarcely add, is the favourite remedy with Huss. When there are signs of irritation in the colon, and more especially when there is tenesmus, an anodyne enema acts like a charm.

Dr. Warde, to whom I have before alluded, speaks of salines as being suited to the treatment of fever of the typhoid type.

Such may answer in London; but with us in Dublin they would be positively injurious. Their effects on the healthy frame are quite too powerful to suppose that they would not act equally so on the frame weakened by a disease like fever; of which the best treatment now avowedly is, what may be called, conservative. To the class of salines I would add the carbonate of ammonia, which I believe to be too indiscriminately used; and which, in my own experience, does not suit the type of fever of which I am now speaking. I have known a very few doses of it bring on diarrhœa; not only in this fever, but in many other diseases; and, if my memory serve me right, I have seen a similar remark made by Sir Benjamin Brodie; and would hence hold out a warning against the use of either salines or alkalies in all diseases of a lowering type.

There is a class of cases of the typhoid fever in which, without any interference, the diarrhœa suddenly ceases; whilst the chest, or it may be the brain, gets as suddenly involved. All such I have found turn out most critical, and I have latterly been in the habit of keeping up, for some days, a discharge from a small blister, usually put on the chest. In this way I think I have seen very beneficial results follow It seemed as if the poison were, in part at least, got rid of by the system; and all went smoothly afterwards. The point, I believe, is worth bearing in mind, and so is mentioned.

In the last place I would notice a point which was also spoken of on a former occasion. Are stimulants, as a class, used too indiscriminately? I think they are. It seems a very general impression that if they are to be used, it matters little of what kind they are: hence, brandy, wine, and beef tea, are constantly spoken of as being given to the same patient. Now I do not deny that all may be required at the same time. But I do say that in numerous instances judgment is to be exercised; for most assuredly the effects are not the same; and when their different composition is considered this need not excite wonder. Thus, if we compare wine and beef tea, the former, contrary to what at first might be thought, may be given with much less risk than the latter; and I am sure I have seen cases where secondary inflammations—in the chest amongst other parts—have been lighted up by want of attention to the very point of which I speak. Though much more might be said on this subject, enough has been advanced for my present purpose.

In conclusion, I would observe, that the class of mixed cases, as they may be well called, require even more than the ordinary amount of attention. The fever becomes so heavy in many of them that the abdominal symptoms are very apt to be masked, and so may readily be overlooked. In such cases too, it may be requisite to direct our treatment at one time to the chest, or

again to the brain; and, in some of the cases given, a combined treatment had to be adopted.—*Dublin Quarterly Journal, August*, 1862, *p.* 67.

2.—ON DISEASES DEPENDING UPON MORBIFIC FERMENTATION, AND THEIR TREATMENT.

By Dr. G. Polli, Milan.

[The following extracts are taken from a most interesting monograph on zymotic diseases, strictly speaking. The experiments seem to have been conducted with great sagacity and care.]

If Dr. Polli's investigations are correct, and his results unquestionable, a new era opens out in the history of medicine; and as vaccine banished small-pox from the civilized portions of Europe, so would the adoption of his remedies render an army safe from the devastation of typhus; a military hospital from the scourge of infectious gangrene; a lying-in establishment from the dreaded puerperal fever; and the public schools from the ravages of scarlatina. The subject is of such importance, that we shall abstain, as much as possible, from comment, and rather give to our readers in a condensed form, and, as far as we can, in the author's own words, an account of his labours, his investigations, and his experiments.

Dr. Polli commences by establishing the great importance of fermentation in catalytic actions, he says:—

"By catalysis, fatty principles which are insoluble, are rendered soluble (glycerine, for instance); some bitter principles, as salicine, are rendered sweet (glucose); some inodorous substances, myrotic acid, for instance, are changed into odorous essences (oil of mustard); many neutral substances, as urea and allantoin, are changed into energetic alkalies (ammonia); some inert principles, or of weak nutrient capacity, as starch, are changed into inebriating substances (alcohol); and, finally, some principles of very slight action on the human economy, as amygdaline, are changed into energetic poisons (oil of bitter almonds and prussic acid)."

Further on he says:—

"Different putrescible organic substances will, therefore, be capable of producing divers *morbific ferments*; or, perhaps, even the one organic principle, during different stages of its decomposition, may be capable of producing the same varied effects; and if, in a healthy animal, some such putrescible substance should be introduced, either by the lungs, the gastro-enteric tube, or by the cutis, or by injection, or by inoculation, such substance being in a state of decomposition, different from that which should correspond with a normal physiological metamorphosis, its introduction would give rise to serious disturbance

in the composition of one or more of the fermentable components of the body; in such cases the *morbific ferment* would be introduced from without. But should the natural metamorphosis of the putrescible substances of our organism deviate from its normal course, either in consequence of atmospheric vicissitudes, great fatigues, insufficient exercise, mental anxieties, or in consequence of suppressed secretions or excretions, such deviations may give rise to compounds capable of effecting abnormal modifications in the putrescible components of our body, and in this case the *morbific ferment* would originate within the living frame. . . . . The change which takes place in the human economy, in either of these cases, is simply due to a catalytic action; I shall, therefore, for the sake of brevity, and also, at the same time to indicate their proximate causes, name all diseases arising in such manner *catalytic diseases*. Catalytic diseases are truly diseases of blood poisoning, for it is in the blood that the morbific ferments are generated, or introduced. . . . . I shall illustrate this operation by quoting some experiments of Schmidt (*Ann. di. Chim. appl. alla Med.*, vol. xxiv., p. 59). Blood, fresh drawn from the vein of a healthy man, will not cause either sugar, urea, amygdaline, nor asparagine to ferment. If the same blood be left exposed to the air for a few days, a principle will develope itself in it, which will be capable of determining alcoholic fermentation in saccharine substances; and after fourteen days' exposure another principle, capable of causing both urea and asparagine to ferment, will be formed. Such blood, however, kept ever so long, will not become capable of inducing amygdaline to ferment.

"Blood drawn from the veins of persons labouring under various diseases, including cholera, induces fermentation in a few hours, not only in sugar and urea, but also in amygdaline.

"From these experiments I conclude, that the albuminoids of the blood, can, under certain conditions, undergo such change as to give origin to specific ferments, which do not exist in normal healthy blood; and that during certain diseases, it not only has a greater tendency to produce these ferments, but will even give rise to others, both different and more active, than such as would arise from the simple spontaneous alteration of normal blood.

"Experiments carefully practised on animals, have given the following important results:—

"1. That the injection of a certain quantity of pus into the circulation, produces pyemia, and such diseases as are characterised by multiple abscesses.

"2. That the injection of putrid matter, produces septicemia, or those diseases recognised by the name of putrid infections, and which are characterised by typhoid gastro-enteritis.

"3. That the injection of matter obtained from contagious diseases, glanders, for instance, will reproduce the same affections.

"The injection of from two to four grammes of corrupted human pus, into the veins of a dog of medium size, and weighing about six or seven kilogrammes, almost always induces vomiting, after a few moments, often followed by alvine dejections. The dog looks stupid and weary, and stretches itself on its side, its breathing gets hurried, it will neither eat nor drink, and thus it remains for two or three days. If the lesser quantity (viz., two grammes), of pus have been injected, then the dog, about the third day commences to improve; it will take a little food, will move itself a little, and altogether look more lively, and by the ninth or tenth day it will be so much better as to be considered quite convalescent; the wound also, through which the injection was practised, and which, at the commencement, had suppurated and spread itself, will now have begun to get small, and will show symptoms of cicatrization. If, however, the larger quantity (four grammes) shall have been injected, the dog will become daily worse, presenting all the symptoms, and running through all the stages, of typhoid fever; it will keep constantly lying down in its kennel, in a sort of stupor; it will take no food; it often suffers from bloody stools; the wound through which the injection was practised becomes livid and gangrenous, and the dog dies between the fifth and seventh day after the operation. At the *post-mortem* examination the gastro-enteric tube is found in a general state of inflammation, the mucous membrane of a dark red colour, here and there dotted with puriform exudation, at times mixed with ulcerations, especially in the neighbourhood of the pylorus, and in the cæcum; the lungs are found full of ecchymotic spots, and the blood contained in the larger vessels, and the right cavities of the heart, is tarry and liquid.

"The injection from one to three grammes of putrid blood, into the veins of a dog, produces a typhoid disease, very similar to that produced by the injection of pus, but of much more serious character. If the lesser quantity be injected, the dog rarely vomits, but remains stupid and motionless, standing on its four legs, hanging its head down, and will remain so at times. for hours; eventually it lies down, and for several days it will neither eat nor drink, the wound, during this time, becoming large, livid, and sanious. By slow degrees, in the course of eight or ten days, the dog improves, but during its entire illness, its complete prostration of strength, together with its comatose state, fully recall to one's mind the characteristics of adynamic fevers.

"If, however, the larger quantity of putrid blood, viz., three

grammes, have been injected, the dog both vomits and defecates, generally within a few minutes, and the successive conditions of stupidity, prostration, and coma, are more strongly marked; the dog lies on his side, with his legs stretched out, as also his head and neck; the wound assumes a sanious and often a gangrenous appearance, and about the third, fourth, or fifth day after the injection, the dog dies. At the *post mortem* examination the entire gastro-intestinal tract exhibits the appearance of a violent attack of gastro-enteritis, the mucous membrane of the stomach and the intestines being deeply injected, dark red, and in some spots ecchymotic and bloody, the most inflamed portions being the stomach, in the vicinity of the pylorus, the duodenum, and the rectum.

"The injection into the veins of a dog of the discharge collected from the nares of a glandered horse, even where only the small quantity of *half a gramme* is used, gives rise to the following phenomena. Immediately after the operation the dog generally vomits, this is followed by utter prostration of strength, laboured respiration, distaste for food, rapid wasting away, the formation, here and there, under the skin and between the muscles, of numerous unhealthy (*marciosi, putrid*) abscesses, which, when laid open, exhibit a lardaceous base, analogous to syphilitic ulcers in the human body; after death numerous clots are found in the lungs, much more numerous and better marked than in the case where pus was injected. These are not merely ecchymotic stains, but real clots, often softened in the centre, and even at times converted into purulent cavities.

"The summary conclusion of my experiments, of which I have now only given a slight sketch, is, therefore, that by means of injections into the blood, with the above mentioned morbific matters, very serious and well marked forms of disease can be produced, exhibiting all the general characters of catalytic diseases."

Once admitted, that catalytic diseases depend on the presence and action of specific ferments in the blood, the question then arises, whether it would be possible to neutralize them, and render them inactive, when once introduced or self-developed in the living body. Dr. Polli answers in the affirmative, notwithstanding the assertion of Claude Bernard (whom he calls the greatest living physiologist), who, after establishing the fact, that fermentation may arise in the blood, and give origin to poisonous principles, which may, in their turn, produce certain grave accidents in the living frame, adds:—"La neutralization des ferments *est impossible*, parce que pour cela, il faudrait changer les propriétés du sang à tel point, que la vie ne serait plus possible (Leçons sur les éffets des substances toxiques et medicamenteuses, p. 99)."

Dr. Polli believes that we possess in sulphurous acid, when combined with salifiable bases, a means of controlling and neutralizing morbid ferments in the blood of living animals, without, in any way, vitiating its qualities so as to render it incapable of maintaining life. After carefully studying the action of sulphurous acid, on organic matters, and fermenting principles, in particular, our author came to the conclusion, that not only it alone, but also its combinations with earths and alkalies, such as the sulphites of soda, postash, magnesia, and lime, possess, in a supreme degree, the power of arresting all known organic fermentations, and putrefactive metamorphoses of animal solids and liquids; and that its action does not depend on its decomposing the fermenting principle, but simply by modifying its molecular aggregation, so that it never acts as a poison on the living organism, as do many other substances, well known for their antiseptic properties, but which, on account of their poisonous effects, can not be employed with safety. He says :—

"I made several experiments with healthy dogs, for the purpose of determining the quantity of sulphites of soda, potash, magnesia, or lime, which could be safely administered, and I found that a dog weighing from seven to eight kilogrammes, could not only take, with perfect safety, from one to fifteen grammes of such salts, but also without the slightest inconvenience; and a dog of about the same weight, took during fifteen successive days, as much as ten grammes of these salts daily. Sulphite of lime appears to be even better tolerated, as on one occasion I gave to a dog of about eight kilogrammes weight, as much as fifteen grammes of it at a dose, and it did not appear to suffer the least inconvenience. I killed several healthy dogs during these experiments, for the purpose of examining the state of their stomach and intestines, and I constantly found them in a perfectly normal condition.

"Having thus determined the harmless action of these salts, I endeavoured to trace their course through the living organism, and determine, if possible, by what way, and in what condition they are eliminated from the system, and I found that they remain as sulphites much longer than might have been supposed, from their aptitude to become sulphates during the oxidizing process of life. I found *sulphites* in the urine, for many hours after their ingestion, and not sooner than after a lapse of twenty-four hours did I find in the urine as *sulphates*. The following experiment will prove interesting:—I took three dogs in good health, and of about the same weight and stature, to one I gave fifteen grammes of sulphite of soda, in the course of twenty-four hours, one gramme at a time, wrapped up in a pellet of sausage

meat; to another I gave fifteen grammes of sulphite of magnesia, in the same way; and to the last I gave the same food, but no sulphites. The three dogs were put to death at the same time; I collected the blood and the urine of each separately, together with the liver and one hind leg, without the skin; I easily detected the presence of the sulphites, in every one of the fluids and solids of the dogs to whom they had been administered, while I failed in detecting even a trace of sulphurous acid in the remains of the third dog. All these samples, liquid and solid, were then left exposed at a temperature varying from 12° to 15° centigrade, and after five days the urine of the third dog exhibited a highly ammoniacal odour, and its liver and leg gave evidence, by their smell, of impending decomposition, while those parts which had been taken from the dogs who had received the sulphites, still remained perfectly fresh.

"These results confirmed my theoretic opinions, and I concluded, that if sulphites taken by the mouth could so modify the tissues of a living animal as to give them the power of resisting, for a longer period, the putrefactive fermentation after death, so might the presence of these same sulphites in the living tissues enable them to resist, during life, the action of those morbific ferments which constitute the essence of catalytic disease."

The author's memoir concludes with the details of sixty-eight experiments, made upon living dogs, which we do not think it necessary to transcribe, they were carried on evidently with great care; one half of the dogs experimented on, were left to the effects of the poisonous injections without any remedy being administered; the other half were treated with sulphites. The results were various, and that fact tends, in our minds, to increase the value of these experiments. Two dogs weighing respectively nine and four kilogrammes, received each an injection of four grammes of normal pus, in their femoral vein. The largest of the two, during the three days preceding the operation, took eighteen grammes of sulphite of soda, and during the two days which followed it, ten grammes more. For ten days the dog continued in very tolerable health, it then began to refuse its food, became drowsy, and two days later it died, in consequence of hemorrhage from the wound. The *post-mortem* revealed a state of enteritis, and melena of the rectum. The lesser dog got no sulphites, nor any other treatment, it became ill, but after a few days began to mend, and on the tenth day it might be considered cured. This same dog, after having perfectly recovered, was treated to a fresh injection, but this time instead of healthy laudable pus, as in the last experiment, was injected with some putrid pus, long kept. The

wretched animal died in three days, and at the *post-mortem* there was found inflammation of the lungs, with scattered pulmonary apoplexy, and gangrene of the wound in the thigh. Several dogs were prepared with different quantities of sulphites, for several days previous to being injected with putrid pus; the result was, that those which had received the smaller doses of sulphites died, while those who had been liberally supplied with them recovered, and the rule seemed to be pretty constant, that the more pus was injected, the greater quantity of sulphite was required to antagonize it. Several dogs were injected with putrid blood, they all, with one exception, died. Other dogs prepared with sulphites and then injected with the same blood, all recovered, as well as some dogs, who were injected with putrid blood, diluted with twice its bulk of solution of bisulphite of soda. A number of dogs were similarly treated, with the discharge collected from a glandered horse, and the result was the same.

We have read this memoir with great interest, the reasoning is plausible, the experiments crucial, the results most satisfactory; and averse as we most sincerely are to all kinds of torture, and though we strongly set our face against vivisections, yet, in this case, we cannot refain from expressing a wish that these experiments, and analogous ones, may be soon carefully repeated in order to test their real value. Not many months ago, we had to deplore the loss of a highly promising young man, resident pupil in one of our largest hospitals, who died from diffuse inflammation, from a puncture received in the discharge of his duties. If Dr. Polli's experiments can be relied on, we had a remedy at hand which could have saved that young man's life. Another practical use, to which we would be glad to see these sulphites put, is the preparation of subjects for dissection. Very rarely does the diligent pupil and assiduous dissector go through his term of study, without suffering, in some shape, from the constant inhalation of the products of decomposition. In fever wards the night chairs might always have a certain quantity of a solution of a cheap sulphite in them; vast suppurating surfaces and cancerous wounds might be dressed with the same, in short, the uses of these substances, when once proved to be efficacious, would be as universal as they would be valuable. In conclusion we would say, that if the author has not deceived himself in his experiments, nor over-rated the value of these substances, but has really discovered in the sulphites a remedy for catalytic diseases, and a prophylactic against them, he has conferred a boon as great, or perhaps even greater, than did Jenner by his great discovery of vaccination.—*Dublin Quarterly Journal, May* 1862, *p.* 367.

3.—THE CHLORINE AND MILK TREATMENT OF SCARLET FEVER AND THE TYPHOID FEVERS.

By Conway T. Edwards, Esq., Brompton Row, London.

[The object of the present paper is to show the beneficial influences which a "chlorine and chloroform treatment," with a full diet of milk, exercise over scarlet fever and the typhoid diseases. It must not be understood that these remedies are advanced as specific, nor as interfering with other necessary treatment, but they possess the important quality of destroying the putrid effluvia thrown off the secreting surfaces of the stomach, alimentary canal, kidneys, lungs, and skin. These effluvia contaminate the air of the sick chamber and are most injurious both to the patient and attendants.]

What writes Dr. Thielman, the Russian physician, in his treatise on Fevers? "He had never seen delirium occur during the progress of *any* fever, under the influence of a full diet of milk, as *after broth!* It is not only well borne, but is easily assimilated, and endues the system with *power to resist* disease." This is exactly what is wanted. How does it agree with our own experience? Yet without going quite so far, if it only remained on the stomach with ease; relieved the thirst; sustained the nervous energy, thereby giving power to resist the disease,—important results would accrue from it.

It were needless here to enter upon the analysis of milk, or to show forth the reasons why it is the most life-sustaining of nourishments.

It is objected that milk is indigestible, and therefore not fitted for a weak stomach; that the gastric secretion (analogous to the rennet of the calf) at once separates the solid from the fluid part, the former coming away, especially in children, untouched by the digestive organs. The theory looks well upon paper, but will not bear the test of experience. Curd itself is eaten with pleasure and impunity, not only in the delicious junket, as made to such perfection in Cornwall and Devonshire, but in the more homely form of closely-compressed curd, floating in its whey. Few beverages are more grateful to the palate, more refreshing, and more thirst-allaying than whey; it is the pleasantest and most cooling of summer drinks, and its effects are much more permanent than even water itself.

In giving milk to the fevered system, you have at once this most refreshing fluid generated in the stomach, and an unirritating solid formed, which in a greater or lesser degree repairs the waste of the living substance. The gastric juice converts the milk into what is popularly termed "curd and whey."

Now, as to the growth-giving and other nourishing qualities of milk, daily experience proves and shows, in the firm and ex-

cellently-tinted skin of healthy infants entirely brought up for seven or eight months upon milk, its potent and genial influence. The mother, being in good health, supplies a nourishment which no science can equal and no art compound. It is a nourishment particularly free from all irritating, clogging, and fever-making principle. It is so curiously and wonderfully compounded, that up to a certain point the infant retains it; but beyond that it is rejected, sometimes from ever-repletion, on account of its excellent nature, and sometimes from the eagerness with which it is taken.

About the year 1844, scarlet fever raged with some violence in the district where I had practised for many years. At an early period of the attack, typhoid symptoms developed themselves. The dryness of the tongue and fauces, the dark secretion on the gums, putrescent fetor of the breath and from the skin, renal and alvine secretions, attested the dangerous nature of the disease. In Bath, a very extraordinary symptom frequently developed itself, and seemed to be the sure precursor of death. This was a rigidity of the sterno-cleido-mastoidei muscles, of a nature so great that they felt like rolls of wood beneath the touch; the smaller muscles soon put on the same action, and the sufferer seemed in dying to be strangled. In the country district this formidable complication did not occur; but one family, fearful that an only daughter might take the disease, left for Clifton. Before six weeks had elapsed, this child was seized with the complaint, and died.

In the early days of the epidemic, several fatal cases occurred in my practice, and something akin to a feeling of regret came over me when summoned to any new case. But an accident opened up a mode of treatment, which soon changed the fatal tendency of the attack. Two children, living at the National School, Bathford, took the complaint. They were relatives of one of the nurses at the Bath Hospital, and she came over to nurse them. The symptoms in one child were urgent from the beginning, and both head and chest suffered severely; the throat was studded with sloughing spots, and greatly swollen; the breath and all the secretions gave out the putrefactive fetor. The cases seemed to be of the worst kind. About the fifth day the nurse said: "She has been better, Sir, since she used that last gargle; the great restlessness is gone, the rambling talk has ceased, and all putrid smell from the breath and evacuations has left. "I believe," she continued, "it was the gargle which did it, for she swallowed the first dose." This gargle was composed of a solution of the chloride of lime, alum ustum, compound tincture of iodine, water, and a little tincture of capsicum.

On examining the throat, I found the nurse's statement to

be correct as to the breath; and not only had this beneficial change taken place, but the sloughing surfaces were assuming a brighter red, the sloughs were evidently contracting or curling up, and the tongue and gums were becoming moist. There was also a quietude about the look and features, which indicated that the nervous irritability was passing away. The nurse was so positive as to the cause of this favourable change, that she was directed to add a drachm of the solution of the chloride of lime to two pints of tepid water, with a little lemon-juice and sugar, and give it as a diet-drink to the patient. This, with a gruel and sago diet, an ammoniated effervescent mixture, and an occasional dose of rhubarb and grey powder and James's powder, were given, until it was safe to administer tonics and good diet. The disease spreading, the same diet-drink was adopted, and the use of chlorine extended by directing the body to be sponged with tepid water containing it, twice a day. After the adoption of this treatment no fatal case occurred.

At the termination of the epidemic I read a paper on the subject before the Bath and Bristol branch of the British Medical Association, being justified in so doing from the numerous cases which terminated successfully. One or two of the members expressed themselves dubious respecting the effects produced by such means, when the physician who had permitted the nurse to attend on her relatives rose and said that "he could vouch for the accuracy of the writer's statements, for his nurse had narrated to him the results of the treatment." This paper I subsequently published. A week after its publication I was agreeably surprised at receiving a polite note from Mr. Martin Ricketts, of Droitwich, (a total stranger to me), stating that "he had perused the paper with great interest and pleasure; that he could confirm all that I had written on the subject of the good effects of chlorine in scarlet fever; and that, strange to relate, a similar accident to a child using a chlorine gargle had led to the adoption of chlorine in his practice; lately, however, he had used a preparation made by the Apothecaries' Company at Liverpool, and termed *chloriform*, which appeared to him to possess all the antiseptic powers of chlorine, with a sedative influence peculiarly its own. The dose was from five to thirty minims. He requested my acceptance of a small quantity, regretting at the same time that it was so expensive." In this preparation lay hidden a grand secret—a glorious gem, sparking, and beckoning to any scientific mind to free it from its prison-house. Its advances were unheeded, until Dr. Simpson first recognized in its component parts something more than the composition of ether—a something which possessed all the anæsthetic properties of that fluid without its nauseous ones. What is its position now? It is first on the list of alleviators of

human suffering; and the discovery of it should have won for its discoverer a world-wide testimonial. I soon recognized the preparation, made public towards the termination of 1844, to be the same as that sent me by Mr. Ricketts; and like other medical men, freely experimentalized with it on animals, insects, &c., and then on our suffering fellow creatures.

On the rebreaking-out of scarlet fever and a typhoid epidemic of the usual form, I prescribed chloroform; but as it did not remove the effluvia so effectually as chlorine, I administered the latter in combination with it. It was, however, observed that after every dose of chloroform a great calmness and inclination to sleep were produced, unattended with any adverse cerebral symptoms.

The beneficial effects which the use of these remedial means produced in scarlet fever, likewise resulted from their exhibition in typhoid fever; so that I had every reason to be satisfied with the treatment.

But the power of preparations containing chlorine over infectious fevers was known long before the disinfectant principle was discovered to exist in that gas. The celebrated Dr. Parry, of Bath, was an advocate for the use of muriatic acid, both externally and internally, in fevers; but the beneficial influence of that medicine was not referred to the chlorine it contained. That acid is now termed hydrochloric, from its chemical constituents; and in the present day, when the chlorate of potass is freely used in malignant fevers, sore throats, &c., it is not frequently you find it acknowledged that to the liberated chlorine are the good results attributed. Read any work on fevers, from the school-book of the day to the popular *brochure* of the minute, and see what little stress is laid on the value of chlorine as an important curative agent.

Since my residence in London, numerous cases of scarlet fever have come under my care; and, with every disadvantage, in many instances, of impure air, small, ill-ventilated rooms, indifferent diet and nursing, two cases only terminated fatally, and these were seen some days after the disease had first appeared.

It must not be imagined from what has been advanced that these fevers were treated solely with chlorine, chloroform, and milk. The antiphlogistic system was invariably practised the commencement of the attack, involving sometimes abstraction of blood, counter-irritation, chloride of mercury, potassio-tartrate of antimony, and purgatives, with gargles of capsicum, alum, iodine, and chloride of lime solution. It is after the first two or three days of this treatment that the internal and external use of chlorine and chloroform is so beneficial, and the milk diet can be depended on—or, if the stomach can bear it, gruel

made thick as good cream, with two-thirds milk; and when we consider what a state of irritation the mucous lining of the primæ viæ must be in, and how certain glandular structures are affected in all typhoid fevers, such a diet cannot but prove most soothing. In conjunction with these, sponging the body twice a day with tepid chlorinated water, change of linen and of bed (where two beds can be placed in the room), will contribute greatly to the general welfare and convalescence of the patient; whilst wine, ale, soups, and jellies can be deferred until the termination of the complaint approaches, or urgent symptoms demand them.—*Lancet, June* 28, 1862, *p.* 684.

4.—CHLORINE, AND THE CHLORINE ACIDS IN SCARLATINA.

By Dr. Henry Osborn, Consulting Physician, Southampton Dispensary.

[This paper was elicited by that of Dr. Conway Edwards. It gives a resumé of a paper read before the Southampton Medical Society, previously to Dr. Edwards's article.]

In this paper I pointed out the remarkable difference existing between the action of the chlorine acids and nitric and nitrous acids in that disease,—the former appearing to exercise a direct action upon the morbid poison, while the latter possessed no therapeutical effects. The conclusion which I drew from the cases under observation was, that the chlorine acids are to the morbid poison of scarlatina what the nitric and nitrous acids* are to typhoid fever. In my hands, these oxygen acids have proved the most valuable therapeutic agents in typhoid fever; but when they were given to patients labouring under scarlatina, or suppressed scarlatina taking typhoid symptoms, no beneficial effects resulted. On substituting, however, the chlorine acids for the oxygen acids, a favourable change took place, and the patients rapidly recovered.

Now, although I have treated cases of scarlatina on the same physiological and chemical principles by nitric acid, I have never reversed my treatment, in order to try the effect of the chlorine acids in typhoid fever; but I have found the chlorine acids in scarlatina, and nitric acid in true typhoid, take precedence of ammonia as therapeutic agents.

It may be necessary to state, that the observations which I have made were in the absence of cerebral symptoms, owing to the mineral acids being contra-indicated when such complications were present. Great care was also taken not to combine

* Nitric acid containing nitrous, decomposes urea, and appears to possess this property when it exists in excess in the blood.

the acids with other remedial agents which tend to neutralize or mask their action; but a few drops of ipecacuanha* wine and syrup of poppies may be added to nitric acid, or to the hydrochloric, should bronchial or pulmonary complications require, without altering their action in a chemical point of view; and when tonic treatment is necessary, the acids may be combined with decoction of bark or quinine.

When nitric acid has been given to excess, the tongue becomes very red, and this is an indication for suspending its use, reducing the dose, or administering an alkali, such as carbonate of soda, to which should be added a little pure ammonia or sal volatile, to absorb the carbonic acid which may be disengaged.

The preparations of chlorine which I have given in scarlatina are those in ordinary use: the nitro-hydrochloric acid; the hydrochloric; and the preparation recommended by Dr. Watson, of chlorate of potash and hydrochloric acid, which mixture contains, I believe, euchlorine.

I have never ventured to give the solution of chlorinated lime or soda internally, though I have frequently prescribed one or the other in the form of gargle. Children who are unable to use a gargle should have their fauces syringed with dilute nitro-hydrochloric acid or the euchlorine mixture; but in mild cases the internal use of these remedies is sufficient, without having recourse to syringing.

The hypothesis which I have advanced relating to the property of chlorine as an antidote to the virus of scarlatina requires further observations and investigation; but it is nevertheless worthy of note that nitric acid should possess the most powerful decomposing property of morbid matter, and prove so efficacious in typhoid, while the virus or morbid poison of scarlatina does not appear to be acted upon by it, or even removed from the system by its physiological action.

I have frequently watched patients whilst labouring under typhoid fever, and observed the rapidity with which nitric acid has cleared away the dusky hue and brightened the countenance, by decomposing the morbid poison of the blood. If that dusky hue depended upon the feeble action of the heart, it should be removed by the exhibition of ammonia, which acts as a stimulant. On the contrary, however, I have seen the dusky hue of the face increased by it, owing probably to the ammonia having an affinity for the morbid matter contained in the blood.

I once treated a case of puerperal fever by carbonate of ammonia, and the yellowish dusky hue of the face was evidently increased by it; the patient, however, rallied slowly under its influence by acting as a stimulant, until nature could throw off

* The activity of ipecacuanha appears to be increased by mixing it with nitric acid, and the mixture frequently acts as an aperient.

the morbid poison. Now, although ammonia is a safe stimulant, it required in this case to be given with caution, and it was sometimes necessary to suspend it, and give the carbonate of soda drink as recommended by Dr. Rigby.

It is a question whether puerperal fever of a typhoid type might not be advantageously treated with nitric or nitrous acid; but the mineral acids are liable to disagree when given in the puerperal state, by causing the milk to dry up.—*Lancet, Sept.* 13, 1862, *p.* 296.

5.—ON THE TREATMENT OF ACUTE RHEUMATISM.

By Dr. Thos. K. Chambers, Physician to St. Mary's Hospital.

[The following is the plan of treatment usually adopted by Dr. Chambers at St. Mary's Hospital.]

1. The patients are bedded in a peculiar fashion. All linen is strictly forbidden to touch the skin. A slight calico shirt or shift may be allowed; but if they possess under-clothing only of the prohibited sort, they are better naked. Sheets are removed, and the body carefully wrapped in blankets, which are so arranged as to shut off all accidental draughts from the head. The newest and fluffiest blankets that can be got are used. The bed clothes being put so are kept so, and students are warned that, when they listen to the sounds of the heart, they must not throw open the blankets, but insert their stethoscope (first warmed) between the folds.

2. Those joints or limbs which are swollen, red, or painful, are wrapped up in flannels soaked in a hot fomentation consisting of decoction of poppy heads, with half an ounce of carbonate of soda to each pint.

3. The following drugs are prescribed with a curative intention:—

(*a*) If the skin is red, swollen, and painful about the joints—if the cellular tissue around the muscles is infiltrated and sensitive, so that motion is impossible or exquisitely painful—more especially if these phenomena are metastatic, leaving one part free and attacking another,—then they get the alkaline treatment pure and simple: they have a scruple of bicarbonate of potash in camphor water every other hour night and day when awake.

(*b*) If the above-named phenomena are insignificant, and the pain is felt more in the bones—if it is intensified rather by pressure than by motion—if it is fixed in one spot and not metastatic,—then I add two grains of iodine of potassium to each dose; and directly the symptoms have taken a turn towards alleviation, I leave off the alkali altogether, and give only the iodide.

4. Opium, as a palliative, is given in exact proportion to the degree of subjective sensation of pain. If one grain be not enough to entice sleep, a grain and a half is administered; if that do not avail, two grains. Directly the pain is better, the quantity of the drug is diminished. Nothing effects the desired object so well as pure opium.

5. If the pain remains fixed in one point, instead of leaving it like in other places, leeches are applied there, and the part is kept poulticed. When we can get them, young laurel leaves, bruised, are mixed with the poultice.

6. The latter treatment is applied also to the cardiac region, if the heart has become inflamed either inside or out. The pain is taken as an indication of the extent to which the leeching is to be pushed, so soon as it is proved by auscultation that such pain arises from inflammation of the heart, and not from rheumatism of the pectoral muscles. The constant application of the poultice is made imperative.

7. The diet is varied in some degree according to the antecedent circumstances of the patients. If they have been robust, hearty persons before the attack they will bear a good deal of starvation, and they are put on our "simple diet"—to wit, bread-and-butter, gruel, and tea, in quantities practically at discretion. If previously they have been ill nourished, by reason of either ill health or poverty, a pint of broth or beef-tea is added.

I will now proceed to comment on the several items of treatment.

It is impossible to exaggerate the importance of extreme repose and an even high temperature to the skin in rheumatic fever. It is worth all the other means of relief put together. Since I have instructed my nurses to adopt it in every instance during the last eight or nine years, I have had pericarditis come on in only one patient previously sound, and that was a girl who was taking mercury and opium, and I suspect had exposed her chest a good deal to the air.

The *rationale* of this is very simple. Rheumatic inflammation is an injury to nutrition which is entirely compensated for by the restored function. It passes away and leaves no after-sign, no wound, no scar. This is what happens if the part affected is kept perfectly still. But should duties be required of it, which it is unequal to perform in its imperfect condition—should necessity or ignorance lead the patient to keep moving a swollen joint, for example—then common inflammation is superadded. Then the pain and swelling become fixed, and no metastasis can take place. You see this frequently in the poor working people, who, through ignorance of consequences, strive to go on with their employments to the latest minute. La-

bourers come into the hospital with the disorder fixed in their knees, carpenters in their elbows, laundresses in their wrists; so that you may make a shrewd guess at their trade from the part where the disorganizing inflammation is situated. Pain may be called by excellence *the* proof of beneficent design in God's laws as shown in disease, as a warning to abstain from that which excites it. The pain of rheumatism is a call to voluntary absolute rest. Now in the joints this is easily obtained, and under any treatment you never see a joint become affected with disorganizing inflammation after a patient has once taken to his bed. But there is one organ whose business admits of no repose; the heart *must* keep beating, at whatever cost; and the heart accordingly is well known to be fatally apt to be struck with common fibrinous inflammation at all stages of the disease. Taking a lesson from what I have noticed in the joints, I try and assist the heart to gain, not, of course, the Utopia of absolute rest, but the nearest approach that is possible.

Perhaps you may think that object would be attained by simple confinement in bed and the horizontal posture. But it is not so. Next to jumping and running there is nothing gives the heart so much work to do as change of temperature. Let the physiologist observe the healthy organ, and the physician examine it in a state of disease, and they will find that the addition or subtraction of heat to the surface of the body is accompanied by a longer and stronger stroke as felt by the finger, by a longer and stronger sound as heard by the ear in the cardiac region. What is technically called "the interval" is shortened; and thus is encroached upon the only wink of sleep the industrious muscle ever indulges in. What does the accoucheur do who wishes to apply the strongest vivifier to the dormant circulation of a still-born baby? He dashes cold water and cold air on the skin; he rubs the chest dry, and applies hot cloths; again he dashes it with cold, making as many changes of temperature as he can. What the accoucheur is so anxious to accomplish, we are most anxious to avoid; and I feel sure that it is in consequence of guarding patients with rheumatic fever from the influence which variations have over the dependencies of the pneumogastric nerve that the treatment now advised is so successful. I never have pericarditis come on when it is once fairly begun.—*Lancet, Aug.* 23, 1862, *p.* 199.

6.—ON THE ABSORPTION OF RHEUMATIC EFFUSIONS INDUCED BY ELECTRICITY.

By Dr. Julius Althaus.

Absorption of *rheumatic effusions* may be readily induced by Faradisation, especially if they are seated in the skin, the cellu-

lar tissue, and the muscles. In such cases Faradisation of the skin is generally advisable, but this proceeding should not be resorted to if the affection is seated in the face, to which moist conductors only should be applied. The curative influence of Faradisation is most striking in rheumatism of the deltoid muscle, and of the interossei and lumbricales of the hand, whether of recent origin or of long standing; and it can, in the treatment of these affections, not be replaced by any other remedy. Rheumatic effusions in the joints are likewise amenable to Faradisation, which must, in this instance, be practised by moist conductors and continued somewhat longer than Faradisation of the skin. In severe cases, the patient is only relieved if the operation lasts for half an hour or even more. If *muscular contractions* are at the same time present, Faradisation of the skin, and of the antagonists of the contracted muscles, proves of great benefit. Some time ago I treated in this manner a patient who was under the care of Dr. Horace Dobell, and who had been seen by Drs. Barlow and Pitman. The elbow-joint was swollen, stiff, and painful, the pain being greatest on the external condyle, where pressure and even mere touch could not be borne. The muscles were considerably wasted, and the arm was flexed in an angle of about 110°, further extension being impossible. I performed Faradisation of the triceps muscle, the joint, and the skin of the elbow, with the result that the patient felt much relieved immediately after the first operation. After the second, he slept for the first time since five weeks without a sedative draught, which he had till then been obliged to take in order to procure sleep. Moreover, the joint was much more supple, the arm could be extended to an angle of about 140°, and there was more power in the muscles. Soon afterwards, however, the patient ceased to attend. In *incomplete anchylosis* of the lower jaw, with pain and difficulty or impossibility of mastication, and of opening the mouth, Faradisation is also appropriate. In cases of this kind it should be performed every day for two or three weeks consecutively, in order to effect a cure.

The same treatment may be resorted to for certain *tumours*, especially of the glandular kind, and some forms of struma; and it is chiefly advisable where surgical operations are impracticable, on account of the seat of the tumour, or where the patient is averse to such operations. A striking case of this kind occurred a short time ago in the practice of Professor Langenbeck, and Dr. Meyer, of Berlin. The patient suffered from a hard glandular tumour, as large as the head of an adult, and lodged between the head and the right shoulder, filling up the space between the lower jaw, the mastoid process, and the linea semicircularis inferior of the occipital bone, and extending

backwards in the direction of the vertebral column, which was dislodged towards the left side. The circumference of the left side of the neck was only six inches, while that of the right side was no less than fourteen. After fifty-six applications of the induced current, the tumour was reduced to one-half of its previous size, and by further treatment its bulk was still more diminished. In such cases each operation should last for about an hour, and the treatment must be persevered in for a considerable time if beneficial results are to be obtained. Galvanization seems, in the treatment of these affections, equally valuable as Faradisation.—*Med. Times and Gazette, Sept.* 13, 1862, *p.* 271.

DISEASES OF THE NERVOUS SYSTEM.

7.—ON POSITION IN ACCIDENT AND DISEASE.

By Robert L. Bowles, Esq., Folkestone.

[In a paper previously published, the writer showed that the cause of stertor in apoplexy and apoplectic conditions was due, in great measure, to the position of the patient at the time, and that by altering the position the stertor would cease. When from any cause the nervous system is so affected as to give rise to general paralysis, the tongue (when the body is supine) falls back into the pharynx by gravitation, and prevents the easy access of air to the lungs.]

There is every reason to believe that the stoppage of the entrance of air, under these circumstances, may be absolute, and cause immediate death; or it may be more or less modified, and give rise to sounds also more or less modified, which collectively have long been known as "stertor." As, however, the different varieties of stertor arise from causes essentially different, it becomes necessary to define them, and to attach to each definition its true value.

Shortly, then, I would recognise three varieties of stertor—

1. *Palatine*, when the air in rushing through the nose or mouth, causes a vibration of the soft palate;

2. *Pharyngeal*, when the air gives rise to a harsh, sharp, husky noise by passing through the narrowed interval between the base of the tongue and the posterior wall of the pharynx;

3. *Nervous Stertor*, which depends upon air bubbling through mucus in the larger air-tubes.

The variety of stertor which indicates the greatest amount of danger from impediments to the respiration is the *pharyngeal;* and this is the most common in apoplexy and apoplectic symptoms arising from accident. It occurs in its worst form when the

patient is supine and the mouth is widest open, from the tongue being brought into closer contact with the posterior wall of the pharynx by the dropping of the jaw; or when the head is much bent upon the sternum, thus raising the back of the pharynx up to the base of the tongue, the tongue itself being fixed by the resistance of the thyroid cartilage. This impedes the respiration to such an extent that the jugulars and other vessels of the head and neck become greatly distended; and the increased congestion of the brain thus caused reacts and increases the paralysis of the tongue; and in this manner things go on steadily and surely to death, if no relief be afforded. If, however, the tongue be hooked forward with the finger, or, better still, if the patient be turned on the side, so that the tongue may fall *away* from the back of the pharynx, the stertor gradually ceases, the mucus drains away from the air-tubes, the congestion of the face and other symptoms of serious import disappear, sensation will partially if not wholly return, and, if there be not too much destruction of a vital organ, recovery will take place.

In a former paper on this subject, already referred to, cases are detailed illustrating all that has just been stated; and, since the *publication* of that paper, I have seen other cases which demonstrate still more clearly the great importance of careful attention to position in the treatment of accident and disease.

Case 1.—An elderly gentleman, staying at an hotel in Folkestone, fell down in a fit in the reading-room. He was laid on his back in a senseless state, and stertor at once commenced. The proprietor was sent for; and (as he had seen me do on similar occasions) he immediately turned the patient on his side. The stertor soon ceased; and, by the time I arrived, the patient began to move and evince signs of returning life. In half an hour he was out of danger.

Case 2.—About two months ago, a man was struck by a heavy chain, and knocked off the Folkestone new pier into the sea. The poor man fell head foremost on the rocks, and was wholly submerged about three minutes. When brought to land, he was supposed to be dead; but one of his comrades commenced rolling the body from side to side, "to get the water out of him," as he expressed it. The man soon began to exhibit slight gasping attempts to breathe; and, on my arrival, I found him most judiciously placed upon his *side*, but apparently dying; his pulse was irregular, and scarcely perceptible and his breathing feeble, slow, and irregular. There was a quantity of water tinged with blood, lying on a coat which had been placed under his head; and I observed that, at the end of every inspiration, more of this frothy water drained from the mouth—doubtless, from the inspired air displacing water from the air-

tubes. Besides the immersion, a compound fracture of the skull and a compound comminuted fracture of the jaw had been sustained, as well as very extensive contusions of the spine and buttocks. By the constant application of ammonia to the nostrils, dry warmth to the body, and friction to the limbs, the poor man was so far restored in two hours as to be able to be taken to bed. Since then, he has struggled through either gangrene of a portion of the left lung, or purulent infiltration from secondary deposits; but, I am thankful to say, he is now sitting up, and nearly well. I cannot but think that, so near death as this poor man was at the time of the accident, he certainly would not have recovered if he had been placed on his *back*, for the tongue to strangle him, and the sea-water to choke up his lungs.—*British Medical Journal*, *June* 14, 1862, *p.* 625.

8.—*Sempstresses' Palsy.*—Under this name, Dr. VAN HOLSBEEK describes an affection having a certain degree of analogy to writers' cramp (or rather to "scribe palsy.") It consists in an entire or partial loss of sensation at the end of the right thumb and index finger, with loss of power to hold the needle. Sometimes, but rarely, the finger and thumb of the left hand are similarly affected. The fingers frequently diminish in volume, and more or less rapidly lose the power of contraction. The muscles especially affected are the opponens pollicis, the flexor brevis and adductor pollicis, the first two lumbricales, and the abductor indicis. At the same time, the skin of the palmar surface of the thumb and index finger, especially at their tips, becomes insensible; and the anæsthesia frequently also affects the middle finger. This paralysis rarely appears suddenly. There is first cutaneous anæsthesia; then the electro-cutaneous sensibility is diminished or abolished, and the electro-muscular contractibility more or less diminished. The most preferable means for the treatment of this affection is electrization—*British Medical Journal*, *Oct.* 12, 1861, *p.* 394.

9.—NEURALGIA IN THE BROW AND TEMPLE CAUSED BY A SCAR.

Case under the care of J. W. HULKE, Esq., at the Royal London Ophthalmic Hospital.

[The patient was a woman forty-six years of age. A tight red cicatrix extended from the root of the nose, above the eyebrow, outwards over the external angular process of the frontal bone, and downwards to the zygoma. This had resulted from the formation of a slough caused by a scald from hot grease. The eye was red and irritable, and exposure to light distressed it. There was intense "plunging" pain, shooting from the supra-

orbital notch along the supra-orbital branches of the fifth. She had had but little sleep for some weeks, owing to the violence of the pain.]

The topical application of aconite and belladonna, and the internal exhibition of quinine in large doses, and of carbonate of iron having no effect on the neuralgia, though steadily persevered with during several weeks, on August 23rd I exposed the supra-orbital nerve where it leaves the orbit, and cut out about a quarter of an inch of two large branches into which it divided. The wound was closed with a couple of wire stitches and a compress. During the two following days the intensity of the pain increased, and there was great inflammatory swelling around the wound. On the 30th the inflammation had subsided, and with it the tic had disappeared.

September 16th, she continued free from pain; the former redness of the scar was much diminished, and the congestion of the eye was gone. On the 22nd of this month, slight shooting pain returned in the course of the infra-trochlear and malar branches of the fifth cranial nerve. At first the local use of aconite together with large doses of muriate of ammonia, afforded relief, but in the middle of October the tic again became very severe in the regions supplied by the nerves just mentioned. At this time I found that slight sensibility had returned in the skin, supplied by the two branches of the supra-orbital nerve which had been divided in the preceding August. I now tried the hypodermic use of morphia, and on the first occasion injected beneath the skin, at the inner side of the middle of the arm, twenty-five minims of liq. morph. hydroch. Ph. L. This produced great excitement, slight incoherence, profound drowsiness, and was followed by a period of ease; but the relief was only transient, for the tic returned on the following day. After this smaller quantities of morphia were daily injected, and always with relief, but only for a few hours. I now lost sight of my patient till February, 1862, when she returned to Moorfields stronger and stouter than I had yet seen her. She still had tic occasionally in the malar and infra-trochlear branches, but it was always relieved by the aconite embrocation that I had first ordered her, and a few doses of quinine.

On March 2nd, her strength having been reduced by an attack of diarrhœa, the tic returned in these nerves with great severity. Losing faith, I suppose, in treatment, my proposal to divide them was not accepted, and I am ignorant of her subsequent history.

The neuralgia, though produced by a local, peripheral cause —the contracting scar, was evidently much influenced by the state of the patient's health, as is not uncommon in these cases.

The excision of a portion of each of the two primary branches of the supra-orbital nerve was perfectly successful so far as they were concerned, and justified the expectation that the same measure would have equally succeeded had it been applied to the other hyperæsthetic branches. The return of sensibility in the skin supplied by the divided nerves after an interval of anæsthesia of about seven weeks' duration, opens the interesting question of the regeneration of nerve tissue. The possibility of the reunion of the ends of the severed nerves within this period is apparent from the experiments of Hjelt, who has shown that one quarter of an inch of a nerve can be replaced, and who agrees with Günther and Schön in fixing the return of sensibility a little before the eighth week.—*Medical Times and Gazette, June* 7, 1862, *p.* 586.

10.—ON DELIRIUM TREMENS AND ITS TREATMENT.

By Dr. William Pirrie, Jun., Aberdeen.

[Before entering on the subject of the treatment of delirium tremens, it is necessary to have a correct understanding of the peculiarities of the three classes of neurotic medicines—stimulants, narcotics, and sedatives. We can then better assign to alcohol its proper place in our classification of therapeutic remedies, from the effects we find it produce, and can judge more accurately of the appropriateness of medicines employed to counteract its injurious effects.]

Stimulants are medicines which pass by absorption into the blood, and are carried by it to the nerves and nervous centres, on which they exercise a marked influence. They exalt nervous force, and increase the energy of the entire nervous system, or of particular portions of it. Some maintain that they merely call out or elicit the nervous energy inherent in the system at the time of their administration, and that they have no power to generate any in addition; but, as Dr. Headland says, "If this were the case, then the reaction or subsequent failure of nervous power, ought to be exactly equivalent to the first temporary increase of that power, assuming this increase to have been simply abstracted from the natural resources. But we do not find it to be so." Stimulants invigorate the circulation, but do not, in general, exert any influence on the intellectual faculties, being limited in their operation to simple stimulation of the organic and merely animal functions of the brain, and of the sympathetic nerve throughout the system.

The members of the second class of neurotic medicines to which the name of Narcotics is given, at times closely resemble stimulants in their primary effects on the system, when given

in small amount. After conveyance to the nerves and nervous centres, they at times produce a transient exhilaration, or a very temporary increase of nervous force; but at other times their primary influence is very different,—an apparently immediate depression of the energy of the entire nervous system, or of some particular portion of it taking place. This immediately depressing effect produced by some of the narcotics, forms a striking analogy between them and the next class we are about to mention; but, however much they may at times, from their primary effects, resemble stimulants, and at other times sedatives, they differ essentially from either of them in exerting a marked influence over the functions of the mind. All narcotics, when taken beyond certain limits, either pervert or altogether drown the intellectual faculties. Some of them, when taken very sparingly, may give a very transient impetus to some of the functions of the mind; but all of them, when taken above a certain amount, either impair, extinguish, or lead astray and pervert the mental powers. They all, moreover, more or less destroy the supremacy and natural directing influence of the will, blunt or otherwise derange the senses, and depress the moral emotions. When given in poisonous doses, death ensues in the way of coma.

Sedatives, on the other hand, exert no marked influence on the intellectual powers, and in this respect differ very distinctly from narcotics. The distinction between them and stimulants is equally well marked: for whereas the latter, to a greater or less degree, excite, call forth, or, it may be, generate nervous force, the former, from the first, invariably depress it. But besides leaving the mental functions untouched, when an overdose has been taken, they differ from narcotics in causing death by syncope, or suspension of the action of the heart, instead of by coma. It is true, as will be mentioned in the case of alcohol, that some narcotics may, when taken in immense quantities at a single draught, induce death by shock, but still their usual method of extinguishing life, when allowed time to exert their specific effects on the system, is by causing the supervention of coma.

Alcohol, the active principle of all intoxicating drinks, has numerous properties, and produces various changes in the tissues, which it is foreign to our present purpose to enlarge on. It has, as most persons are aware, irritant and astringent properties, but it has another property which many are ignorant of, and which most who do know are very unwilling to admit, or, at least, to act as if they believed. Many consider that alcohol is properly arranged in the class of stimulants. This is, doubtless, so far correct, but it is also inaccurate, inasmuch as it is only by its primary and transient effects on the system that

it deserves that place. If we observe its effects when taken in large or frequently repeated doses, we find that, though it at first enlivens the mind, and arouses the nervous energy, it afterwards produces decided depression, perverts or overpowers the mental faculties, and if continued to be taken induces coma and death. It is a narcotic poison, and it is placed by Dr. Headland amongst the inebriant narcotics, of which he says,—"The medicines of this order, taking alcohol as a type, approach more nearly to stimulants than any other narcotics. When given in small doses, their narcotic operation can hardly be perceived. They are then exhilarants, slightly quickening the pulse, and enlivening the mental faculties. When given in large doses, this stimulating action on the heart and mental powers occurs first, and is now more intense; but it is soon succeeded by disturbance and impairment of the intellectual faculties." That alcohol has this power, and that it really is a powerful inebriant narcotic poison, a cursory view of the various phenomena induced by the continued drinking of any intoxicating liquor will at once convince us.

Dr. Christison, our greatest authority on poisons, writes,—"The sedative action of alcohol on the brain constitutes it a powerful narcotic poison." It is doubtless true that alcohol may cause death much more speedily and in a different way from that just described. If an enormous quantity of any of our most intoxicating liquors, such as brandy or whisky, be taken at a single draught, the nervous centres become at once overpowered, the heart ceases to beat, and death takes place by shock. This, however, in no way enfeebles my previous argument; it simply proves that alcohol may cause death in more ways than one, the exact form being dependent very much on the rapidity and quantity in which it is admitted into the system.

The experiments of Dr. Percy, which have frequently been repeated and corroborated by other eminent physiologists, clearly prove that nervous tissue has a special attraction for alcohol, and a great power of condensing it into its substance; and that the brain, above all other organs, is most rapidly and most frequently attacked by the poison. Dr. Percy injected into the stomach of a dog a quantity of alcohol sufficient to cause almost immediate death. With as little delay as possible, he removed the brain, and placed it in an apparatus for distillation. By this process he extracted from the brain a considerable quantity of alcohol, and, what is very remarkable, more than he could obtain from an equal weight of any other part of the body, or from an equal weight of blood. The opinion of Dr. Percy that some particular affinity exists between brain matter and "spirit," was afterwards advocated by Dr. Carpenter

in his treatise "On the Use and Abuse of Alcoholic Liquors in Health and Disease." In referring to this point he says,—"The alcohol being thus specially drawn out of the circulating current by the nervous matter, is incorporated with its substance in such a manner as even to change (when in sufficient amount) its physical as well as its chemical properties. It is important also to observe that this affinity is obviously such as will occasion the continual presence of alcohol in the blood, even in very minute proportion, to modify the nutrition of the nervous substance more than that of any other tissue: for the alcohol will seek out (as it were) the nervous matter, and will fasten upon it, just as we see that other poisons, whose results become more obvious to our senses (although the poisons themselves may exist in such minute amount as not to be detectible by the most refined analysis), will localize themselves in particular organs, or even in particular spots of the same organ." With reference to the specific action of alcohol, Dr. Peddie remarks,—"If there is one disease more than another arising from habitual excessive alcoholic drinks, in which a peculiar toxicological effect is manifested, it is delirium tremens." He also observes that, "like plumbism, mercurialism, ergotism, or narcotism, alcoholism is manifestly specific in its nature." Recent experiments, both in this country and in France, by means of a delicate chemical test—bichromate of potash and sulphuric acid—convincingly prove that alcohol is a poison to the blood and to various organs, but more particularly to the brain.

My own experience and observation have produced, in my mind, the firm conviction that the paroxysm is not owing to the sudden withdrawal of the accustomed stimulus: for I have always found it to be the direct result of a violent fit of drinking, or of long-continued, steady "tippling," and not of any refrainment from intoxicating drink. It is usual to describe two separate and distinct forms of delirium tremens,—viz., delirium è potu or delirium ebrietatis, an acute alcoholism, the immediate consequence of a debauch and of the presence of drink in the system; and delirium ebriosorum, or the delirium of drunkards who habitually indulge to a large extent, but not to such a degree at any time as to unfit them for the particular duties of their calling. This second form is usually observed to occur after sickness or change of regimen, and is said to be the immediate consequence of the suspension of the accustomed stimulus. Now I think that these cases may be satisfactorily accounted for without attributing them to deprivation of the ordinary stimulus, and that they admit of the same explanation as the cases of "traumatic" delirium following bodily injuries or surgical operations. But I think that the theory of privation or suspension of the stimulus being the exciting cause of the

paroxysm, is confuted by actual facts. If it be true that delirium tremens occurs in persons who have not been drinking for some short time, it is equally true that numerous drunkards cease from their evil habit, and become sober men without suffering in any degree from the disorder. Now, if the suspension of the ordinary stimulus were the real exciting cause of the affection, it ought to operate equally powerfully in both instances. The theory is also negatived by the experience of many who have had the opportunity of watching the effect of suddenly withdrawing alcoholic liquors from those long accustomed to excessive indulgence in them. "To me," writes Dr. Peddie, "it is apparent that habitual excess in the use of stimulants is alike the exciting and the predisposing cause of delirium tremens, and that if a suspension or diminution of habitual supplies be at any time attended by symptoms of the disease, these are not to be regarded as resulting from change in the quantity consumed, but as occurring in spite of such change. The error is a popular one, and has arisen from imperfect inquiry into the history of individual cases and incorrect observation regarding the circumstances connected with the supposed reduction or abstraction. When called to see a case of delirium tremens, on inquiring as to the habits of the patient, we are frequently informed by his friends that for a long time large quantities of spirits, or wine, or malt, or all of them, and perhaps in addition morphia or opium, had been systematically consumed, but that for some time (a few weeks perhaps) much less had been taken, and within the last few days little or none; and then the inference is drawn for us that the unfortunate patient has actually brought on the attack by meritorious efforts to free himself of a habit of which he had begun to be ashamed. Now all this is very plausible, but not in accordance with the strict facts of the case, as the individual himself, if put on his word of honour, will probably confess. The statement ought to be that he was formerly in the habit of consuming large quantities of his favourite stimulant, until he found that a much less dose began to affect the system, that then he reduced the amount still further, but experienced an equal if not greater constitutional effect therefrom, and thus, from day to day, reduction was forced on him from his own sensations of gastric irritation, nervous excitement, and muscular debility,—these feelings having been, in fact, neither more nor less than the premonitory symptoms of the attack of delirium tremens, and just what might have been expected if, as I have ventured to assert, the alcoholic principle is to be viewed as a cumulative poison.

Although there may be a little difference of opinion as to the exact identity of the delirium tremens è potu and the "traumatic" delirium of Dupuytren, amongst those who consider the

former disease to be a specific toxæmia, still there is but one opinion as to the immediate cause of the seizure after accidents and serious diseases. All agree that it is the shock to the system which causes the immediate outbreak, and not the sudden refrainment from stimulants enjoined in the treatment to which the sufferers are subjected, or rendered unavoidable from their particular condition at the time. The shock, operating on a system already greatly disordered by the abuse of ardent spirits, causes a more speedy manifestation of the disorder than would have been the case had no injury been sustained. The system in the habitual drinker is always tending towards a paroxysm, which, however, requires a certain continuance in intemperate habits for its due manifestation. The shock, by the additional disturbance it causes to the nervous system, renders the system unable any longer to withstand the fit; matters are brought to a height, and a paroxysm of delirium tremens ensues. Now, I think that a great many cases of the so-called delirium ebriosorum admit of the same explanation. A man has for years been a confirmed drinker, yet seldom or never so drunk as to unfit him for work. More or less alcohol is always in the system, which in consequence has become very "shaky;" but so long as no additional disturbance of the nervous system occurs, the habitual drinker, although perhaps for long on the brink of an attack, yet never suffers from a decided paroxysm of delirium tremens. By and by, however, he suffers from some disease, it may be slight; or he is put under some restraint, or suffers some disgrace, which, from affecting his position and character, causes him considerable annoyance and anxiety. For a little, nothing unusual happens; but after a day or two the man becomes more shaky and disturbed in mind, and at last falls into an attack of delirium tremens, which is hastily attributed to the sudden change from habitual intemperance to complete abstinence. But I think we may with reason consider the mental agitation and nervous trepidation caused by the bodily disorder or the punishment or disgrace incurred by the drunkard, as the immediate cause of the outburst, just as the more decided shock consequent on accidents or severe operations. The only difference between the two classes of cases in my opinion is, that in the one class the system is more completely alcoholized, and consequently requires less additional disturbance of the nervous system to hurry on a paroxysm than is required for the same end in the other.

[Dr. Pirrie does not believe that a state exactly resembling delirium tremens ever does follow the sudden withdrawal of other substances, such as opium, tobacco, or Indian hemp, when the use of these substances had been previously abused. He has had in India ample opportunities of observing the effects of

these drugs. In a subsequent part of the paper the writer continues:]

I have given sufficient reasons for the belief that delirium tremens does not consist simply in nervous irritation and exhaustion from the want of a previous stimulation, and that the sudden withdrawal of alcoholic liquors is not the exciting cause of a paroxysm in either of the forms usually described—the delirium ebrietatis or the delirium ebriosorum. I have also stated my belief that, under certain degrees of alcoholism, a sudden shock or agitation of the nervous system, though not the exciting cause of a paroxysm, will hurry it on sooner than would otherwise have been the case; and that it is a disorder induced by alcohol alone,—that it is a specific toxæmia. I have also hinted that the proper nutrition of the brain is interfered with, which implies that the poison must operate through the circulation. It is now necessary to inquire what the changes are that the continued use of alcoholic liquors produces in the blood. Before doing so, I would premise the proposition, that alcohol poisons the blood, and in consequence poisons the whole body, but more particularly the brain, for which it has a special affinity, and to which it rushes with extreme rapidity. How does it do so?

The experiments and observations of Dr. Beaumont on St. Martin, the Canadian, satisfactorily proved that if a notable quantity of any strong alcoholic liquid were taken into the stomach during the digestion of food, the solvent properties of the gastric juice were impaired or destroyed by the more or less complete precipitation of the pepsin which is its active principle, and that the process of digestion would be perfectly arrested under such circumstances, were it not for the extreme rapidity with which the alcohol is absorbed and passes into the blood-vessels. From the researches of Lallemand, Perrin, Duroy, Dr. Edward Smith, and others, it would appear that the alcohol passes from the stomach into the blood unchanged, and that a large proportion of it passes out of the system, as such, by the skin, the kidneys, and other eliminating channels. Part of it, however, is decomposed. A certain amount of water is formed by the combination of the hydrogen of the alcohol with the oxygen of the air, which enters the system in larger amount, owing to the increased frequency of respiration arising from the temporarily excitant action of the alcohol. The production of water, together with acetic acid, is rapidly followed by the formation of carbonic acid and water. The consequence of this misappropriation of oxygen is, that the amount of carbonic acid, absolute and relative, exhaled at the lungs is greatly diminished; and an amount of oxygen is left quite inadequate for the natural metamorphosis or proper oxidation of the waste of the living

tissues. This unoxidized waste matter accumulates in the blood, which gradually assumes a more and more venous character. The retained waste is in part converted into fatty matter, which accumulates in the blood in large amount; and, according to Dr. M. Huss, of Stockholm, the fatty particles may sometimes be detected in the blood by the unaided eye. This fat is very prone to take the place of the normal textural elements, and hence the great frequency of fatty degenerations of the kidneys, the heart, the liver, and other important organs, a healthy state of which is necessary for the continued welfare of the system.

By the laborious and searching investigations of Dr. Prout, Dr. Davy, Dr. Edward Smith, Perrin, Duroy, and others, we have been made acquainted with a long train of injurious effects resulting from the action of alcohol, whereby the blood becomes largely poisoned, and the proper nutrition of the various organs of the body seriously interfered with. It would appear that alcohol frequently reduces the temperature of the blood below the normal healthy standard, and seriously interferes with the due elaboration of the blood-globules. It also very markedly diminishes the amount of carbonic acid exhaled from the lungs, and lessens the amount of urea excreted by the kidneys. It renders the blood highly venous, prevents the natural metamorphosis or oxidation of the waste of the tissues, and occasions an undue accumulation of fatty matters in the vital fluid. It further appears that it cannot in any way be looked upon as food, for it neither diminishes nor repairs the waste of the tissues, and, though some believe that it has, others deny that it has any proper claim to be ranked amongst substances which contribute towards the maintenance of the animal temperature by intra-combustion. I have, however, said sufficient to show that the blood is very impure, and consequently unfitted for the normal nutrition of the nervous centres. Different opinions have been expressed as to the exact element in the blood which interferes with the healthy nutrition of the brain; but whether it be, as suggested by Dr. Morehead, alcohol, as such, incorporated with the nervous matter, or, as hinted by Dr. Todd, "a compound formed of alcohol and perhaps some morbid matter generated in the system," it is sufficient for the framing of rational rules of practice, to know that the blood is in a poisoned state, consisting very probably in the presence of unchanged alcohol, and of some matter generated or retained in the system by its influence. Now alcoholic liquors may be taken to such an inordinate extent and with such brief intermissions of of sobriety, that the blood becomes speedily poisoned to a degree incompatible with a healthy discharge of the cerebro-spinal functions, and a paroxysm of delirium tremens during the debauch is the consequence; or the intoxicating drink may have

been taken daily, but in smaller quantity at the time, and with longer periods of abstinence. The result of this steady drinking is that the system, from the constant presence of the poison in the blood, is kept on the verge of delirium tremens into which it falls on the occurrence of any accidental disturbance of the nervous force. The poison has not accumulated to an extent sufficient for the development of delirium tremens, but the deficiency is compensated for by the additional disturbing influence of some disease or casualty. It is a very singular circumstance, that the toxic properties of alcohol, although constantly manifesting their effects by organic changes in many important organs, and though frequently displayed in the peculiar functional derangement of the cerebro-spinal system constituting delirium tremens, have very little influence in predisposing to disease of the nervous system. It is a remarkable and interesting fact lately ascertained by Dr. Marcet, that the abuse of alcohol, although it powerfully predisposes to febrile disorders, to diseases of the lungs, and of the stomach and intestines, has very little tendency to predispose to non-alcoholic disease of the nervous system. Dr. Marcet found, on carefully excluding every case of alcoholism, that the predisposition from abuse of alcohol to nervous affections, was "much less than to all other diseases taken collectively;" and, compared with the corresponding predisposition to all other diseases considered individually, least of all with the exception of one group. This is very strange, for as Dr. Marcet remarks, "it is a well-known fact that the nervous substance has the power, to a certain extent, of condensing within its tissue the alcohol which has been absorbed into the blood, and, consequently, it would appear but natural, that alcohol interfering with the healthy nutrition of the nervous centres, the nervous system would have become thereby more liable to (non-alcoholic) disease."—*Edin. Medical Journal, Oct.* 1862, *p.* 328.

11.—A CONFIRMED CASE OF DELIRIUM TREMENS NOT OCCASIONED BY DRINK.

By Alexander Murphy, Esq., R.N., You Ruhama, Japan.

[A stoker, belonging to H. M.'s ship *Reynard*, went on shore, and returned in twelve days in a state of delirium. During this time two men belonging to the ship had been murdered by Japanese assassins, and apparently the delirium of this case ensued from the extreme nervous excitement caused by this event.]

Extract from Surgeon Jenkins' Case Book.—"To day the attack on the Legation has made a great impression on his mind, and

he appears to labour under the conviction that he is about to be shot, and for some nights be has been excessively nervous and unable to sleep."

The night following his return on board, he left his hammock and ran on deck in a state of great alarm, the source of which he was unable to explain. There was a moist skin, soft and compressible pulse, and a tremulous condition of the tongue; in fact, no symptom indicative of "drunkard's delirium" was absent.

I may mention here that the patient (who has borne a good character in his ship) had not an opportunity of indulging in any intoxicating liquor; this has been satisfactorily proved by the officers under whom he was serving.

Treatment.—On presentation he had one grain of morphia, but no useful result followed. Two sleepless hours having elapsed, during which there was much excitement, he then took forty drops of laudanum with fifteen drops of chloroform; this secured the desired effect, having induced sleep half an hour after administration. I am aware that this remedy is a popular one, and I may add that a tolerably extensive experience has led me to regard the combination of laudanum and chloroform as invaluable in the treatment of delirium tremens.—*Lancet*, *Oct.* 11, 1862, *p.* 392.

12.—CASE OF DELIRIUM TREMENS.

By Fenton Manifold, Esq., 34th Regt., Leetopore, Oude.

An Englishman, a bandsman, aged twenty-seven, stout and muscular, twelve years' service, and lately reduced to the ranks for intemperance, was brought to the hospital on January 4, 1861, in a great state of nervous depression and mental anxiety, after a series of debauches during Christmas week, ending in a convulsive fit, in which condition he was conveyed to the hospital from his barrack-room. He was immediately placed in bed, in a ward by himself, in charge of a European orderly, and directed the following draught,—

℞. Carb. ammoniæ gr. v.; mist. camphoræ ℥j.; liquor opii sed. ℥xx.; fiat haustus s.s. et rep. tertiis horis.

He was also ordered beef-tea, and the head to be kept cool.

January 5. Has had no sleep. Tremens well marked. Endeavours to get out of bed, and is with difficulty prevented from doing so. To have a calomel purge, followed by a cathartic draught combined with antimony, and one grain of morphia at bed-time; also, beef-tea and beer.

Third day. Very restless and delirious, talks wildly and incoherently, and has had no sleep since his admission into the hos-

pital. Morphia combined with antimony repeated every third hour without producing the desired effect.

Fourth day. Much worse in every respect; wandering and delirious, although conscious when spoken to sharply. To have tinct. digitalis ℥iij. immediately, and the following mixture :—

℞. Tinct. digitalis ℥j.; tinct. lavand. co. ℥ss.; mist. camphoræ ad ℥viij.; fiat haustus. Dose ℥i. omni secund. horâ.

Fifth day. Much better this morning, after a refreshing sleep. To continue the mixture.

Seventh day. Convalescent. From this date he improved gradually, although weak, and was discharged to duty on Jan. 18, 1861.

Remarks.—The beneficial effects of the digitalis were well marked in this case, the first dose acting as a powerful sedative, allaying irritation, and producing sleep. I would have no hesitation, in a similar case to the above, giving half-ounce doses of the tincture, to be repeated, if requisite, every second or third hour; but this will seldom be found necessary.

In a case in which I was lately consulted by Dr. Barn, Royal Artillery, in which there was well-marked insomnolence, jactitation, and delirium, and where both morphia and hyoscyamus have been administered in vain in large doses, the second dose of tincture of digitalis acted like a charm.—*Medical Times and Gazette, Aug.* 23, 1862, *p.* 192.

13.—ON OBSCURE BRAIN DISEASE.

By Dr. N. Nivison, Burdett, Schuyler Co., N. Y.

[The writer fears that cases of threatened or obscure brain affections are "too often overlooked by the medical attendant," and considers that cerebral pathology has been much neglected. We cannot agree with this statement. Cerebral pathology has not made so much progress as the pathology of some other parts, simply from the intricacy of the subject; and cerebral affections usually show themselves by early and unmistakeable signs.]

In September last, while practising in the village of Yonkers, I was consulted by a gentleman, apparently about thirty-five years of age, of nervo-sanguine temperament, who gave of himself the following history: He is a New York merchant, business relations extensive, both here and on the other side of the Atlantic. Has always enjoyed excellent health until last spring, at the time of the "panic," when his business gave him much anxiety. He soon after began to experience very strange sensations in the head, but as they were only momentary, and occurring but three or four times a day, he gave them little attention. Soon, however, they became more frequent, recurring at any

time, and especially when a little extra exertion or close thinking was required. On the days of the arrival and departure of the European steamers it was worse: riding in the cars would produce it. He could not add up a column of figures without feeling it, and when such was the case he lost his reckoning; was obliged to begin and make the addition over again. It was sometimes necessary to repeat this process again and again before the addition was complete. In describing this peculiar sensation, he could only say that it was a "confused feeling," lasted for a moment, and was gone.

It was, nevertheless, apparent that it was to him a subject of much anxiety and apprehension. Though he was scarcely aware of it himself, a very critical examination satisfied me that there was at each paroxysm a brief, though almost inappreciable period of time, in which there was loss of consciousness—for a moment the mind refused to act. An instant of mental confusion, a moment of forgetfulness, a sensation as if aroused from slumber; and the paroxysm was gone.

He confessed to a slight impairment of his usual energies, but otherwise, with the exception of these strange sensations, was as well as usual.

He had taken medical advice early, and at intervals since, both here, and in Europe, but without sensible relief. Hepatic torpor was at first suspected and prescribed for. Not getting the desired relief, it was suggested that his business was too severe a tax upon him. He was advised to travel. Went to Europe accompanied by his family. He spent some three months abroad, but did not improve. It is now six weeks since his return, during which time he has given some attention to business, and grown steadily worse, the paroxysms frequently occurring several times an hour.

I consented to take his case under advisement. For the first two weeks my treatment was entirely experimental.

I suspected the condition of the brain was one of atony, and more extended observation led me to believe that this atonic condition was due to some strange perversion, whereby *the nutrition of its tissue was inadequately performed.*

The salts of zinc, nux vomica, and a variety of other remedies were successively tried with little or no relief. I then gave quiniæ sulphas gr. iss. ter in die. He immediately improved, the unpleasant paroxysms were much less frequent. The countenance became animated, and we began to entertain hopes of a speedy recovery. But in this we were doomed to disappointment. For although the "strange sensations" had now well-nigh disappeared, a new set of morbid cerebral symptoms immediately succeeded them. He now complained of *constant pain* in the head. This increasing in severity, became a source of much

anxiety. At the end of ten or twelve days the quinia was discontinued; but the pain remained. A week later, the pain still remaining, I began to suspect a sub-inflammatory condition of the brain.

Acting upon this hypothesis, I ordered a pill of prot. iod. hyd. gr. ss., ext. hyoscyami gr. j., to be taken twice a-day; at the end of a week he was greatly relieved. It was continued some two weeks longer, when he expressed himself as feeling better than in many months.

December 15th. The remedy has been used at intervals; he is now, to use his own language, "almost quite well."

If this case is remarkable, it is chiefly so for its obscurity, and the simplicity of the treatment to which it finally yielded. It was a problem which several eminent physicians both in this country and Europe failed to solve.

With much deference I submit the following as its rationale:—

The incidents of the "panic" imparted to the brain a condition analogous to what in surgical technology we denominate "shock." This not only produced temporary incapacity, but so far impaired the tone of its nutrient vessels as to produce permanent inanition; *ramollissement* would have speedily followed.

A merely overworked brain, still retaining its integrity, should have recovered during the protracted relaxation of the voyage to Europe.

The tonics restored the lost action to the nutrient vessels, the unpleasant paroxysms at once subsided. But the tonics did more than this; they produced excessive action, inflammatory even. This yielded to the silent and continued action of the alterative, and a healthy equilibrium was restored.

Had not remedies been successfully addressed to this case, I cannot resist the conviction that softening of the brain with mental fatuity would ultimately have resulted.

With Winslow, we are prepared to believe that "there are few morbid mental conditions so fatal in their results as these apparently trifling, evanescent, and occasionally fugitive attacks of mental depression."—*American Journal of Medical Science, April*, 1862, *p.* 348.

DISEASES OF THE ORGANS OF CIRCULATION.

14.—ON THE TREATMENT OF RHEUMATIC PERICARDITIS AND ENDOCARDITIS.

By Dr. Joseph Bell, Physician and Clinical Lecturer, Glasgow Royal Infirmary.

[The first question which naturally arises, in considering the subject of treatment of such a disease as Pericarditis is, can we

cut short the affection? If we confine the signification of inflammation to the pathological conditions which exist prior to the effusion, there can be no hesitation in answering in the negative, for the simple reason that the disease is never detected sufficiently early. It is hence the products of the action which demand our serious attention, and not the action itself. The real questions at issue are—1. Do effusions into the pericardium or on the endocardium ever become removed? 2. Can we employ any remedial agents by which such removal can be either assisted or secured? The first may unhesitatingly be answered in the affirmative; the second is a question of remedies, which we proceed to consider.

Bloodletting.—General.—This is undoubtedly of great value in the case of robust men in an agricultural district. *Local,*—The writer has given up, 1st from not finding any benefit resulting, 2nd, from the difficulty of understanding how the loss of blood from the capillaries of the skin of the chest can affect the vascularity of either the pericardium or endocardium. *Blisters* he now never uses for two reasons corresponding to the above.]

Mercury.—The happy results which have followed the use of this remedy in my hands, have led me to place the greatest confidence in its curative powers. My experience therefore completely agrees with that of Latham, Graves, and others, who have regarded it as the sheet-anchor in the treatment of the diseases in question. I have had again and again the satisfaction of observing the disappearance of every physical symptom, as soon as the mercurial action became manifested on the gums. This result has not been confined to private practice, but has been also witnessed in the wards of the Royal Infirmary by numerous students.

In the administration of mercury two circumstances require attention:—1. To be useful it must be employed at the earliest period of the disease, that is, as soon as the physical symptoms become developed. If its exhibition should be delayed until the effusion has undergone alterations, and the fibrine coagulated, then little or no benefit will result; indeed, under such circumstances it would be unreasonable to expect success. The therapeutic power which the drug possesses, is to promote the action of the absorbents, but semi-coagulated or semi-organized fibrine is not amenable to its influence. 2. On these grounds, therefore, I hold that it is necessary to bring the patient under the influence of the mercury as rapidly as possible: we should never forget that if the effusion should become organized, then the patient's doom is sealed; sooner or later the diseased valve or the adherent pericardium will lead to death. In such cases our struggle is not between health and disease, but between life

and death. Promptness and energy are imperatively demanded from the medical attendant. His object must be to bring the patient's constitution as rapidly as possible under the mercurial influence. He must therefore administer the drug in the manner which is best calculated to secure this effect.

I have tried various plans in order to produce rapid mercurialization. Calomel given in doses of two or three grains every two or three hours, I have found to act very well. I have given occasionally a large dose of from ten grains to fifteen grains at the commencement, and followed this up by small ones of two or three grains every three or four hours; this method has also succeeded very well, the action on the gums becoming evident in a short time.

The following plan, however, I have found much more rapid in producing the constitutional effect:—I order a drachm of strong mercurial ointment to be made into a suppository, with a little tallow, and inserted into the rectum every eight hours. A full dose of opium should be given about two hours previous to the use of the suppository, in order to secure its retention. I have on some occasions seen the gums becoming tender within twenty-four hours; the time rarely has exceeded two days.

Cautions to be observed in the employment of Mercury.—1st. It is useless to give it when the effusion has existed for a considerable length of time. 2nd. It should not be employed either in patients of a strumous habit, nor in those labouring under albuminuria.

With these exceptions, I beg to record it as the result of my experience, that mercury has proved in my hand by far the most useful remedy which I have employed in the management of diseases under consideration—the agent on which every reliance may be placed, in spite of all the objections that have been urged against its utility.

Objections.—1st. It is argued that it often fails to secure removal of the effusion. 2nd. Other agents succeed equally well. 3rd. That it injures the constitution of the patient.

Let us examine these objections very briefly.

Objection 1st.—Failure.—We have often to lament the failure of almost every remedy in our possession; but this affords no reason why we should cease to employ them, but on the other hand, should lead us to investigate the circumstances of every case with great care and circumspection, with the view of discovering the cause of failure in some, and of success in others.

In the cardiac diseases in question one cause of failure has been already pointed out; viz., the existence of the effusion for a long period before the remedy is employed, the effusion having undergone either organization or other alterations which render its absorption impossible. Again, the mode of administration

may not have been calculated to bring the constitution rapidly under its influence, so as to prevent coagulation of the fibrine. A third cause of failure will be found in the extensive character of the effusion; and complications may exist which, with the conjoint influence of the effusion, may kill the patient in spite of any kind of treatment. The occasional failure of mercury in removing the effusion is no valid objection to its use.

Objection 2nd.—Other agents succeed equally well.—This may be admitted to the full extent, without diminishing in the slightest degree the value of mercury. I am glad to say that we do possess many other articles of the materia medica capable of effecting this important result. Nay, further, I believe that some of these substances are much more suitable in certain cases than mercury; but the success of other articles furnishes no argument against the employment of the mercurial treatment.

Objection 3rd.—Its injurious effect on the patient.—It is at once conceded that in feeble and strumous constitutions the free use of mercury is prejudicial, and still further, that its abuse at former periods was productive of great evils. These circumstances, however, afford no reason why we should totally discard it. The excessive and injudicious employment of the remedy does not justify its exclusion from practice. A very excellent writer on this subject at once admits that he is afraid to use mercury, simply because at one period of his life he witnessed very unpleasant consequences following its improper administration. I am sorry to say that, many years ago, I have seen some unfortunate results; but, on the other hand, I beg to state that I have never witnessed the slightest evil or inconvenience to arise from the proper use of the remedy. In concluding these remarks, I have no hesitation in affirming *that it is the agent in which I can place the greatest confidence in the removal of the diseases in question; so much so, that I would consider myself guilty of a dereliction of duty to a patient if I did not give him the advantage of the remedy*, unless some circumstances existed which precluded its employment.

Iodide of Potassium.—This article I have often employed when I was prevented from using mercury, in consequence of its inadmissibility. I have found it beneficial, but to be so it must be given in full doses, viz., from ten to fifteen grains every six or eight hours until its constitutional effects are produced; after this the dose should be reduced. The ordinary dose of a few grains will avail nothing. Promptitude is everything in the diseases under consideration; the effusion, if not rapidly absorbed, will soon become consolidated and irremovable, conse-

quently we must give the remedy in a manner calculated to produce both a rapid and decided effect.

Stimulants.—This class of remedies has been strongly recommended by some of the followers of the late Dr. Todd. This eminent physician has published several cases of rheumatic pericarditis treated by the free use of brandy. I fear that the benefits of this plan have been overrated. Stimulants under certain circumstances undoubtedly are demanded; indeed they are the only remedies on which reliance can be placed. The circumstances which demand their use, however, are only of occasional occurrence, and soon disappear.

I am convinced that by the free use of brandy and wine I have often saved the life of the patient, when labouring under pericarditis. In these cases the pericardium became rapidly filled with effusion, so much so as to push the apex of the heart up above the fifth rib, and otherwise impede its action, so as almost to bring it to a stand-still. Wine, brandy, and whisky, given freely, acted most beneficially in stimulating the heart's action and preventing syncope, until either the organ had got accustomed to the pressure, or some of the fluid had become absorbed. In such cases a most serious temporary evil occurs, and the only way by which its fatal effects can be obviated is by the liberal employment of stimulants; so soon, however, as this somewhat transient peril has passed away, the stimulation is no longer required. Its aid is only needed to meet a difficulty of great magnitude; but if this should not take place, or if it has been surmounted, the remedy is unnecessary. This is a very different matter, however, from treating pericarditis by stimulants; these agents will neither cure the disease nor remove its effects; they can only assist in maintaining the action of the heart when the amount of the effusion is so great as to impede its motions. Stimulants are therefore to be regarded as temporary or occasional remedies; but when they are demanded they are truly precious and must be employed in quantities capable of maintaining the heart's action.

Rapid effusion into the pericardium very often takes place, threatening syncope; indeed sometimes this occurs, and the patient never rallies. Sometimes the slightest exertion, such as getting out of bed, induces this fatal syncope. Consequently we should be most careful to prevent patients labouring under pericardial effusion from making the slightest exertion; and when feebleness or irregularity of the heart's action is observed, we should without delay order suitable quantities of either brandy or wine, and continue its use until all symptoms of cardiac oppression have disappeared. Such, then, is the posi-

tion which stimulants should hold in the treatment of pericarditis.

From the facts and reasonings which I have adduced in this paper, I beg to make the following conclusions:—

1. That when the physical symptoms either of pericarditis or endocarditis become manifested in a case of rheumatic fever, we are entitled to infer that these diseases exist, irrespective of the absence of the general or constitutional symptoms which usually attend the idiopathic forms of these diseases.

2. That we are justified in considering that the effects are capable of being removed, and are therefore amenable to treatment.

3. That those remedies which are calculated to remove congestion and promote absorption, form the proper therapeutic agents; and that of these bleeding, mercury, and iodide of potassium, are among the most powerful and useful.

4. That when the action of the heart becomes enfeebled in consequence of effusion into pericardium, the free use of stimulants becomes absolutely necessary—*Glasgow Medical Journal, July*, 1862, *p.* 163.

15.—ON THE TREATMENT OF ACUTE RHEUMATISM,

CONSIDERED WITH REGARD TO THE LIABILITY TO AFFECTIONS OF THE HEART, UNDER DIFFERENT REMEDIES.

By Dr. W. H. Dickinson, Assistant-Physician to the Hospital for Sick Children, &c.

[This paper is based upon a tabular condensation of the cases of acute rheumatism which were admitted into St. George's Hospital during the five years ending on December 31st, 1861, and in whom the heart was, on admission, unaffected by the disease. The main object of investigation is the effect of remedies in preventing cardiac mischief. Dr. Sibson has published a table of 21 cases treated by opium—in these, no less than 14 manifested while under treatment symptoms of valvular or pericardial inflammation. We give an abstract of that portion of Dr. Dickinson's paper treating of the usual alkaline treatment.]

The full alkaline treatment was exemplified by two tables. It consisted in the administration of the salts which potass and soda form with carbonic and the vegetable acids, in quantities varying from half an ounce to an ounce and a half daily. Half a drachm of the acetate, with twice as much of the bicarbonate of potass, dissolved in the haustus ammoniæ acetatis of the hospital pharmacopœia, furnished an ordinary form of prescription. This was given every four or six hours, and sometimes made to

effervesce by the addition of a little citric acid. Salts of soda were sometimes resorted to. The total of 48 patients thus treated passed through the dangers of the disease, with only a single instance of any cardiac affection. In the exceptional case the murmur came on within twenty-four hours of the commencement of the treatment, and did not prove permanent. The average number of days in hospital, when this treatment was applied simply, was 25, the smallest of all; when other medicines, as colchicum, were used in addition, five days were added to the average period. Dr. Garrod's published cases, in which bicarbonate of potass was used alone, were quoted as rather less successful than those at St. George's, in which neutral salts were given in addition. 24 of Dr. Garrod's cases afforded 3 of inflammation of the heart or its membranes. It was concluded that the carbonates of potass and soda, and those of their other salts which in the body are capable of being converted into the carbonates, exert an especial curative power in rheumatic fever, and, if given in time, will completely protect the heart from the dangers by which it is surrounded. Taking the proportion of heart affection under the alkaline system, 1 in 48, and with this as a standard, reviewing the other plans of treatment, the result was striking. 113 cases where other remedies were used gave 35 instances of cardiac mischief, or a proportion of 1 in 3·2. Nitre, next to the alkalies, was the most successful. The general symptoms were shortened under its use, and the frequency of cardiac inflammation was reduced to 1 in 10. Regarding the other remedies which have been credited with the cure of acute rheumatism, t simply became a question which were useless and which injurious. Mercury allowed a proportion of cardiac inflammation of 1 case in 4. Saline treatment gave a worse result. With bleeding, one half of the cases became thus complicated. Under opium the mischievous influence of the disorder attained its maximum. Two-thirds of the cases so treated had the symptoms of endocarditis or pericarditis. With the exceptions stated, it was maintained that the more active the remedies the more untoward, generally speaking, is the progress of the disease. It was shown that the use of colchicum retarded the recovery of the patient.

The practical deduction was, that acute rheumatism is best treated by giving at short intervals a solution of nitrate, acetate, and bicarbonate of potass in such doses that ten or twelve drachms of the two latter salts together are taken in the twenty-four hours. Half a drachm of the acetate, with a drachm or a drachm and a half of the bicarbonate, and ten grains of nitre, would answer the purpose.—*Lancet, June* 28, 1862, *p.* 689.

DISEASES OF THE ORGANS OF RESPIRATION.

16.—ON THE TREATMENT OF PNEUMONIA, WITH THE RESULTS OF 105 CAREFULLY RECORDED CASES.

By Dr. J. Hughes Bennett, Edinburgh.

By pneumonia or inflammation of the lung I understand a disorder essentially composed of an exudation from the blood among the elementary textures, and into the air vesicles of that organ, which gives rise to those well-known physical signs and functional symptoms with which we are familiar.

This, like most other inflammations, when acute, was formerly treated by so-called antiphlogistics; that is to say, bloodletting, purgatives, antimonials, low diet, and other methods of lowering the strength of the patient. It is about eighteen years ago, in consequence of investigating the pathology of inflammation, that I began to doubt the propriety of such a treatment; and this for the following reasons. In the first place, the cause of the inflammation is an irritation of the textures—of the ultimate molecules of the part—in consequence of which their vital power of selection is destroyed, and that of their attraction is increased. The removal of blood by venesection cannot alter this state of matters, neither can other lowering remedies. If the inflammation be superficial and limited, local bleeding nay relieve the congestion, as in conjunctivitis; but, if exudation have occurred, it cannot remove that.

In the second place, an exudation or true inflammation having occurred, it can only be absorbed by undergoing cell-transformation. Now this demands vital force or strength, and is arrested by weakness. Inflammations in healthy men rapidly go through their natural course; in weak persons, they are delayed or arrested; hence their fatality.

In the third place, the strong pulse, fever and increased flow of blood in the neighbourhood of inflamed parts, have been wrongly interpreted by practitioners. They are the results, and not the causes, of inflammation, and show that the economy is actively at work repairing the injury. So far, therefore, from being interfered with and interrupted, they should be supported by nutrients.

It follows, fourthly, that if these views be correct, the true treatment of inflammation should be directed towards bringing the disease to a favourable conclusion by supporting rather than diminishing the vital strength of the economy; and this not by over-stimulating, as was done by Dr. Todd, but simply by attending to all those circumstances which restore the nutritive processes to a healthy condition.

Having been guided by these views in my practice for the last fourteen years, and having seen that gradually they have been adopted by the profession, it is, I think, in my power to offer you the most convincing proof of their correctness from an analysis of 105 cases of pneumonia that have been treated and carefully recorded by my various clinical clerks in the Royal Infirmary during that time.

Before proceeding to give the results of these cases, it should be observed that pneumonia, during the period when it was treated by bleeding, antimonials, and other antiphlogistics, can be proved to have been a very fatal malady. Andral tells us that the experience of ages has taught us to be more prodigal in the taking of blood in pneumonia than in any other disease; that there is no period of the disease, no condition of the pulse, no apparent debility of system, no age, which forbids its practice; yet it is curious to observe that—according to the analysis of Dr. Markham—of the 65 cases of the disease he records in the *Clin. Méd.* illustrative of his treatment, no fever than 36, more than half, die. Of the uncomplicated cases, 9 only reach the stage of engorgement, yet 2 of them die; 13 reach the second stage, and of these 5 die; 7 cases reach third stage, and these all die. Of the 29 uncomplicated cases, 14, nearly one-half, die. He gives 36 complicated cases; and of these 22, nearly two-thirds, die.

The facts recorded by the physicians of the Edinburgh Royal Infirmary, between the years 1832 and 1837, as tabulated by my former resident clerk, Dr. Thorburn, give a mortality of 1 in 3 cases.

The statistics of Dr. John Reid, between the years 1839 and 1849, give nearly the same mortality of 1 case in every 3 of pneumonia. The numbers are: cases, 648; deaths, 222. And the carefully chosen cases of M. Louis, to test the effects of bloodletting, give exactly the same result. The cases were 107; deaths, 32.

Rasori thought it a great improvement in practice, when, by means of his antimonial treatment, he reduced the mortality in cases of pneumonia from 1 in 3 to 1 in $4\frac{1}{2}$; that is, in 648 cases, 143 died.

Grisolle, on diminishing the amount of bleeding, still further reduced the mortality to 1 in $6\frac{3}{4}$; and Dietl, by a purely expectant treatment, brought it down to 1 in 13.

My practice is directed to support the strength of the economy, never to weaken it in any stage by antiphlogistics; although, if dyspnœa be urgent, cupping, or a small bleeding, may be practised as a palliative, more especially in bronchial or cardiac complications. During the febrile excitement, mild salines are administered. On the fourth or fifth day, when the

pain has abated, good beef-tea and nutrients are administered; and, on the pulse becoming soft or weak, from four to eight ounces of wine daily. As the period of crisis approaches, slight diuretics are given, to favour the excretory process. In this manner I have now treated 105 cases of pneumonia in the clinical wards of the Royal Infirmary during the last fourteen years, with the following results.

Results of 105 *Cases of Pneumonia in Adults, treated publicly by me during the last fourteen years in the Clinical Wards of the Royal Infirmary.*

No. of cases, 105.

Deaths, 3, all complicated cases; one of intestinal ulceration, one of Bright's disease, and one a drunkard, with delirium tremens and cerebral meningitis.

Ratio of deaths 1 in 35 cases.

Average age of cases, 31⅔ years.

	Cases.		Days.
Single uncomplicated,	58	Duration averaged	13·5
Double ,,	19	,, ,,	20
Complicated	17	,, ,,	15·8
Unsatisfactory (as to duration)	8		
Deaths	3		
	105		

Average residence in hospital of 77 uncomplicated cases of pneumonia (single and double), 22⅛ days. [This is too high. Some linger from weakness, from subsequent attacks of rheumatism or skin-disease. One remained in a fortnight after recovery, from having no shoes, &c.]

It has been supposed that in consepuence of this comparatively small number of cases, extending over so long a period as fourteen years, the disease is rare in Edinburgh; but it should be explained that the clinical professors are on duty alternately; and, as regards myself, I have never acted as physician to the Infirmary more than one-half the year, and in most cases only one-third of the year.

Again, it has been supposed that the cases there are unusually slight and trivial, or that the disease is not extensive. But it is not so. In Edinburgh, now as formerly, many and especially the double cases of pneumonia, have been very severe, with great dyspnœa and very urgent symptoms. I have also frequently pointed out instances of the pulse being hard and strong in vigorous young men, in whom, however, the most rapid recoveries were almost invariably observed.

It should also be noted that these cases were in no way selec-

ted, but do not include a few which were admitted *in extremis* at night, and never seen by the physician; nor such as were partly treated by other physicians in the hospital, and for which treatment I am not responsible.

From these facts I conclude—

1. That simple pneumonia, if treated so as to support instead of lower the nutritive processes, so far from being a fatal disease, invariably recovers.

2. That the cause of mortality in these cases is exhaustion, either before they come under medical supervision, or, as formerly practised, from an antiphlogistic or lowering treatment. All bleedings that do not exhaust must be regarded as palliative, rather than as curative; and their influence has yet to be determined with exactitude.

3. That the same rule applies to all inflammations; the amount of danger being in direct ratio to the weakness of the system and the existence of complications in other viscera, or from blood-poisoning.

I cannot dwell at greater length now on what it appears to me are these important results. I shall only remark, in conclusion, that in my opinion they are not the effect of chance; of empirical experiment; of a change in the nature of inflammation, or of the force of the pulse in man and animals; nor of an alteration in diet or of drink; nor of nervous susceptibility; nor of a change in the type of disease,—all of which have been supposed by some explanatory of facts which can no longer be denied. The more I consider this subject, the more am I convinced that it is to the advance of medical science only that it can be rightly attributed, and that it is our highest privilege and honour so to consider it. It is strange that some minds would rather attribute so manifest an improvement in the treatment of disease to hypothetical revolutions in nature which have no proof in their support, than to the increase of knowledge among ourselves, of which all fact and all experience serves to convince us. To me it seems certain that, if any one demand in what way our advance in physiology and pathology has benefited the treatment of disease, he will find no better proof of it than in the diminished mortality that everywhere now accompanies attacks of acute inflammation.—*British Med. Journal, Aug.* 23, 1862, *p.* 195.

17.—ON THE TREATMENT OF PNEUMONIA.

By Dr. Thos. K. Chambers, Physician to St. Mary's Hospital.

[The beneficial action of bloodletting in pneumonia is mechanical. It is more a question of hydrostatics than of physiology.

By the temporary death of a portion of the lungs, the blood cannot be passed sufficiently quickly through the tissue. There is undue pressure in the venous system and right side of the heart. Take away some of the blood from the veins, and the balance is restored.]

Remember that in letting blood you are wielding a dangerous weapon. While from a mechanical point of view nothing can equal the aid it gives, at the same time its more remote or physiological action is hurtful. The shrewd comedian tells us, "necesse est facere sumptum, si quæris lucrum;" so that if you have gained the inestimable boon of a restoration of balance in the circulation, and a consequent relief of dyspnœa and an arrest of the progress of death in the lungs, you must not complain if some evils attend the process. The mere loss of so much "liquid flesh" is in itself an evil, but a minor one; of greater import is the increased proportion of effete fibrin and water which it induces, the diminution of red globules, and the consequently diminished power to bear up against the destruction, however temporary, of so much pulmonary substance.

Judge, therefore, of the necessity for this treatment by the balance between the heart and the arteries. If the apex of the former organ strikes strong while the pulse at the wrist is defective, act freely and confidently. If, on the contrary, the ventricles are weak while the pulse is full, large, and rapping, be cautious in what you do, and if you draw blood at all, let it be by cupping the chest.

Be careful to supply material in the place of that which you are taking away. Let the patient be fed with beef-tea or milk every two hours, just as if he had typhus fever. I mention this part of the treatment next to the bleeding to remind you of the close connexion which there is between the two, and because of the immense importance of it to your success, whether you elect to bleed or not.

I now come to a direct restorative, about the use of which at all times you need have no manner of hesitation. You can always, without any exception of age, sex, condition, cause, or complication, follow a treatment to which I attribute more power of saving the lives of pneumonic patients than to any other, and which you see me apply in all cases; I mean the enveloping the chest in a large bath-like poultice. The action of warmth and moisture on animal tissues tends directly to increase their vitality. You may *see* with the naked eye a healthy surface of skin under their application renew its life; it empties itself quickly of its pale, livid, venous blood, and glows with a fresh access of the bright arterial stream; it swells up elastically with fresh juices; it is more delicately sensitive

when used for the purposes of touch ; at the same time it feels no pain, but, on the contrary, an exquisitely pleasurable calm. You cannot see this renewal of life in internal organs; but you may infer that what takes place in one tissue takes place also in another with modifications dependent on distance and other difficulties of application. And you may infer it also from the results; for you find the dyspnœa diminished, the breath being easier drawn in spite of the weight of the poultice; the hot, fevered skin becomes moist and active, and soon the ribs begin to move again, and air is readmitted into the previously paralysed lung-tissue. These effects are the most strikingly shown in the case of infants, whose thin chest-walls are rapidly and efficiently permeated by the influences of the poultice, and in whom also this remedy is the only one really safe and invariably necessary. I cannot speak too strongly of the importance of your adopting it, and letting all other treatment be rather rejected than this directly restorative agent.

The poultice is best made of bruised meal, because that keeps moistest. It should be spread half an inch thick at least, on a cloth or flannel, as broad as the circumference of the thorax. If any portion of the upper lobes is inflamed it is essential, and even if only the lower lobes are inflamed, it is prudent, that it should be deep enough to cover the whole chest from the collar bones to the hypochondria. Lay the patient on it on his back, and fold it across the front until it meets. In adults it will usually keep in its place of its own accord; but in children it is useful to have a tape stitched on in front and a tape behind, which you tie over each shoulder in the manner of a shoulder-strap, otherwise the little prisoners wriggle out of their soft breastplates. When once you have got it *in situ*, keep it there, and desire the nurse, on pain of dismissal, never to take it off till another hot one is ready to go on.

In low fever the continuous poultice somewhat stands in the way of the cool sponging. But, in practice, this last important part of the treatment becomes less necessary at the period when congestion and pneumonia occur; the skin has then become cooler and more active. Besides, the poultice often takes its place by softening and suffusing with a gentle perspiration the whole body. I have often had pneumonic patients complain of the way in which it makes them sweat.

Alcohol, especially in the form of port wine, is very useful in treating pneumonia. Even in hearty temperate persons, when you are going to bleed, it is desirable to give a little. A glass of hot negus, before the operation, makes it safer; and whenever you observe the nervous system prostrated by the extent of the disease, so as to produce tremor of the hands, quivering of tongue, delirium, dry brown tongue or a tendency thereto, throw

in a little wine from time to time. In old persons, especially in the upper classes, who have been used to good living, and in persons of all ages who have indulged too freely in alcoholic liquids, you need not wait for any symptoms as above described, but begin with wine immediately. In children it is not required, and they will get well quicker without it.

In the pneumonia of typh fever, position is of great importance. As long as the walls of bloodvessels retain their natural elasticity, they are able to resist the gravitating force which acts of course, on the blood as on all matter; but when their life is lowered in disease, the elasticity is the first vital property which suffers, and the blood then gravitates towards the lowest part of the viscus. This is especially the case in typh fever. Lay the patient, therefore, on the side opposite to that affected, or even on his face for a time, if both are affected; and thus the very force of gravitation, which you feared as an enemy, becomes a friend, by withdrawing the congestion from the weaker point. This boy was cupped on one side. You need not be afraid of a small loss of blood in typh fever, where an important viscus requires it. A large portion of the vital fluid you take away is poisoned and dead already, and unfit for the purposes of life; so that you are not robbing the patient to to the full extent of the quantity drawn. You saw this lad was much more lively after his cupping than before. It is better to draw it locally than generally, because local benefit is expected from it, and not general.

I always abstain from giving purgatives in pneumonia. My reason is, because I have observed that patients who have diarrhœa at the same time generally do very badly; and if natural diarrhœa does harm, I infer that artificial diarrhœa does harm also. I prefer to produce constipation by opiates, where it does not already exist. If the rectum gets blocked up with fæces, it is easy to wash it out with warm gruel.

Blisters, also, have seemed to me to do harm in a few cases where I have seen them employed before the patient came under my treatment. It is usually non-medical persons who put them on, under the general idea that they are good for a cough with pain in the chest.

Nothing has been said about antimony and mercury, drugs formerly much used in pneumonia. They are destructives, and I cannot see that there is anything to be destroyed in this disease, or that there is anything whose destruction would aid the employment of direct restorative treatment. When I used them, I was frequently obliged to leave them off on account of bad symptoms attributable to their agency, and I always felt doubtful if success in prosperous cases could be traced to them. But in all diseases which have been under treatment before yours,

pray never let a word escape your lips, or a thought dwell upon your minds, about the patient being worse for the means previously employed. Most probably the harm done even by the most unsuitable drug is inappreciable; for a sick man is a tougher animal than we often give him credit for, and will stand a vast deal of faulty physic, and it can hardly be but what some of the the treatment has added to his chances of life more than if he had been let alone. Besides we are all infinitely fallible; and it is not for us to judge of circumstances we have not seen.—*Lancet, Aug.* 16, 1862, *p.* 169.

18.—ON THE TREATMENT OF PULMONARY CONSUMPTION.

By Dr. Thomas K. Chambers, Physician to St. Mary's Hospital.

It is clear that it is the *tendency* to tubercle, and not the *existing* tubercle, which we have to fear and to guard against; and that for the successful treatment of consumption we must withdraw our minds from the morbid anatomy of the locality to the fatal propensity of the constitution.

To my mind, it is a great relief and rest to be able to map out by auscultation the exact extent of the mischief done, and to know that there is enough discovered morbid change to account for the severity of the symptoms. I feel then like a general who is acquainted with the exact position and whole force of his enemies, and is sure that the country will suffer no further loss if only they can be kept from advancing. There is no question about the future conduct of the war if only reinforcements can be stopped in their march. If the remaining portion of lung has retained life so long, it can retain life longer, and the whole attention can be applied to its conservation.

In what direction must we turn to aid in this conservation? To the lungs? But if we look to the histories of those who have lived long with vomicæ or tubercles, they are by no means found to have taken special care of their lungs—they have not coddled or lived in-doors in even temperatures, hanging their lives on to their thermometers for fear of coughs; they have gone on with their professions or business or work; they have not "laid a knife to their throat," but have eaten and drank like other people, and have enjoyed the gratification of their appetites. A patient of mine, over fifty, with copious pyoptysis and condensed lungs (probably tubercular) from his youth, has kept hounds, broken his bones like other Nimrods, contested county elections, sat in parliament, enjoyed his champagne and other good things, but *never allows any doctoring of his chest.* An examination of it is a favour, as a contribution to science.

The statistics of the phthisical in the two sexes corroborates this deduction. Although males are more liable to tuberculosis than females, yet they are less liable to have that tuberculosis exhibited in the lungs. Now, in all classes, women are the least disposed to exert and expose their lungs; they are more ready to invalid themselves; and, in the lower classes, whence these statistics are taken, they do not wear low dresses or tight stays.

And what is this tubercular matter? It is not anything peculiar to the lungs, but may arise from the degenerated nutrition—the inferior development of life—of any part. Excepting my glands, many of which I can easily spare, I should prefer having it in my lungs to any other portion of my body; for I know that I can live with a good deal less pulmonary tissue than nature has given me. But I cannot live with it in my brain, or my heart, or my alimentary canal, of which I have only one.

Leave then the respiratory organs alone, and turn your attention to the stomach and bowels, the true organs of nutrition, which will receive with open arms any care you may bestow upon them.

It is truly by aid of the digestive viscera *alone* that consumption can be curable. Medicines directed to other parts may be indirectly useful sometimes, but usually impede the recovery, which in fortunate cases takes place in spite of them.

The object at which you should aim is to get the greatest amount of albuminous food possible fully digested and applied to the purpose of the renewal of the body, at the same time that the renewing agencies are brought to their highest state of efficiency. In this way, a healthy cell-renewal takes the place of that morbid imperfect cell-renewal which appears in the shape of tubercular matter.

With this view, I avoid as far as possible all those drugs which may be classed together as "cough medicines." I mean antimony, ipecacuanha, and squill especially. I avoid also mercury, purgatives, and neutral salts, which are debilitants. Where the heart is thin and weak, digitalis is sometimes useful, by regulating and calming its action; but, as a rule, it is injurious, by the nausea and loss of appetite which it causes.

The appetite should be your great object of care. You will often find it exceedingly deficient; and, where that happens, the mucous membrane of the stomach and bowels should be brought into a braced state by quinine and by strychnine. The latter acts quickly, and may be added to the medicines from time to time; but the former is most permanent in its effects, and should be begun at once, and continued through the whole process of medication, till the appetite equals or exceeds that of a healthy person.

Iron again you will find a most powerful ally. The increase in the hæmatine of the blood which follows its use is all-important; for thus you supply to the tissues one of the few true life-giving medicines, red blood. Begin it in small doses, and gradually increase it till you find the quantity the patient can take, and then continue to administer rather less than that, so as to leave room for an occasional augmentation according to circumstances. Where you give digitalis, make it a rule to add iron and sometimes strychnine to the dose, as you thus get the full advantage of the digitalis, and avoid some of its possible evils. Iron prevents the nausea, and strychnine cooperates with digitalis in strengthening and regulating the action of a weakened heart.

When the disgust to food is extreme, adopt the plan you so often see adopted in these wards with success, of giving milk in small and very frequently repeated doses. If you find it lie long in the stomach, and produce heartburn or acid eructations, add lime-water to it. Food has an illogical habit of arguing in a circle: it creates the desire for food—of course, by strengthening the digestive organs; and thus, after a few days of milk-diet, the patients will voluntarily ask for meat, and enjoy as a luxury that which a short time before excited the greatest disgust.

In the same way cod-liver oil will also act. It will often, like milk, create an appetite. But as a rule, especially in private practice, it is well not to commence it too soon, as the disagreeableness of the taste and feel is difficult to get over at first, nd it is much easier to take it when the appetite has begun to be renewed.—*British Medical Journal*, *May* 17, 1862, *p.* 512.

19.—PLEURITIC EFFUSIONS, VIEWED IN RELATION TO THORACENTESIS.

By Dr. Henley Thorp, Letterkenny, Ireland.

[The history of the operation of paracentesis thoracis affords a striking illustration of the slow growth of human knowledge, and the difficulty of arriving at fixed principles in the treatment of disease. It was practised by the ancient Greek, Roman, and Arabian Physicians, yet even now, with all our advantages of a sounder pathology and refined diagnosis, the question is far from settled.]

At what period should we operate in cases of simple pleuritic effusions, and to what extent should the slowness or rapidity of the effusion influence our conduct? What are the indications for the operation in cases of secondary effusions, whether depending upon diathetic or general diseases, or determined by

irritation in the lungs or adjoining organs? How, and in what manner, should the nature of the fluid, whether serous, seroalbuminous, purulent, &c., modify the operation? Should the fluid be drawn off gradually, and at successive times, or is it desirable to obtain a complete evacuation of the chest in the first instance? Under what circumstances is it desirable to close the wound after the operation, or leave it patulous? Does the situation of an empyema as to right or left side lead to any special indications? These are questions that might each furnish an appropriate subject for a separate thesis, and which, if submitted to the ordeal of general discussion, would in all probability receive very diversified answers. In truth there is yet wanting an extensive series of accurately recorded cases to constitute reliable data from which just inferences might be drawn as to the success of the operation, whether considered generally or with reference to its performance in particular complications of disease. A statistical table, no matter how voluminous, which amasses all cases indiscriminately, and fails to record minutely the variable conditions under which the operation is performed, whether as respects the constitution or diathesis or the state of local organs, more especially the lungs, fails to simplify the problem, or to eliminate formulæ for our guidance based upon something like definite principles.

Case 1.—[William Russell, aged thirty-five, was attacked about five years ago with pneumonia on the right side. He recovered perfectly, but three years ago was seized again with chest symptoms. The physical signs at this time were those of pleuritis with bronchial congestion. The general symptoms increased in severity and all treatment seemed unavailing.]

At my next visit the patient's condition was all but hopeless; there was orthopnœa, a rapid vermicular pulse, hurried breathing, moist skin, copious, fetid, purulent sputa, countenance dusky, and strength rapidly failing. Thoracentesis was now the only alternative left me, and I immediately performed it. Drawing the skin a little to one side, I pushed a trocar steadily through the sixth intercostal space, a short distance behind and below the nipple, keeping the instrument close to the upper edge of the rib below. Upon its withdrawal a stream of abominably fetid, viscid, greyish-yellow, purulent matter issued, per saltem, or rather in a periodically accelerated current, through the canula; the quantity discharged in this manner measured about a pint—when I withdrew the tube, and dilated the opening freely with a probe-pointed bistoury, so as to obtain a free and continued vent for the contents of the cavity. The patient, to whom stimulants were freely administered, bore the operation well; and expressed himself, shortly afterwards, as being greatly

relieved. A poultice was applied over the opening, and he was directed to lie as much as possible on the left side.

The subsequent history of the case is easily told. It was one of gradual, but uninterrupted recovery. The patient rallied, his strength increased, the cough became less harrassing, and the exhausting expectoration and sweats declined from day to day; the opening remained fistulous, and continued to discharge for several months; gradually, as the cavity emptied itself, the heart moved from right to left into its normal position. At no time, either previous or subsequent to the operation, was I able to recognise the ordinary phenomena of pneumothorax, namely, succussion, metallic tinkling, or amphoric respiration. It is scarcely necessary to state that the strength of the patient was sustained by the free use of tonics, stimulants, and animal food. He now enjoys excellent health. I examined his side a few days ago; it is very slightly contracted; on percussion it is scarcely so resonant as the opposite; nor is the respiratory murmur so loud; but there is no marked alteration in its physical condition, such as we are accustomed to meet with as a consequence of suppurative pleurisy.

Apart from the successful result of thoracentesis, the foregoing case presents features of very unusual interest. Pulsation has often been observed in cases of "empyema of necessity;" and a valuable paper on the subject was published some years ago in this Journal, by Dr. M'Donnell. A throbbing of the lung, in certain cases of pneumonic consolidation, was noticed by Laennec; and a unique case of pulsating pneumonia, attended with *bruit de soufflet*, is given by Graves in his *Clinical Medicine*. Cases, however, of throbbing empyema such as the foregoing, unattended with perforation of the costal pleura, and accumulation of pus under the skin, must be exceedingly rare. Walshe, indeed, has twice seen cases of this description, and refers to them in his work on Diseases of the Lungs and Heart. What, it may be asked, are the conditions necessary to the production of pulsation in the exceptional cases of pleural effusions in which it occurs? Or, why is it that the stroke of the heart is communicated to some fluid collections and not to others? In most of the cases in which it has been observed, the impulse was strong, diastolic, and heaving, like that of an aneurism; from which it may be inferred that the empyema was so circumstanced as to be subject to the well-known hydrodynamical law of the propagation of pressure through fluid bodies. Now, if we suppose an empyema to be encysted, or closely pent up by adhesive matter, and that the contained fluid, without the interposition of yielding lung substance, comes into direct relation with the mediastinum internally, and the chest-wall on the outside, we have all the conditions furnished for supplying the phenomena of pulsation.

I believe the case just detailed to have been an interlobar encysted empyema, for the following reasons:—1. Although, in the first instance, the effusion occupied the general pleural cavity, as indicated by the physical signs, at a later period respiration was distinctly heard postero-inferiorly, at a time when it was totally absent higher up over the area of pulsation. 2. There was no depression of the diaphragm or spleen. 3. The attack was not followed by contraction of the side, immobility of ribs, curvature of spine, or concentric displacement of organs. 4. The pulsation corresponded to the line of the interlobar fissure. 5. The fluid discharged was viscid, as it were from admixture of mucus. In connection with this latter fact it is important to remark, that at no time previous to the operation were the phenomena of pneumothorax to be observed. This I am certain of, from careful and often-repeated examinations. There was consequently no direct communication between the cavity of the abscess and the bronchial ramifications; still the fluid resembled a mixture of pus and mucus. We can only account for this fact by a reference to the laws that determine the mutual diffusion of fluids of different densities when separated by moist membranes or porous substances. If the matter lay, where I believe it did, in the fissure between the two pulmonary lobes, it was surrounded on all sides by lung-substance, and necessarily brought into close relation with numerous bronchi, between the contents of which and the interlobar collection an *exosmose* and *endosmose* might with facility occur. The patient, for several days previous to the operation, coughed up large quantities of purulent matter; and had his strength withstood the effort, and the urgency of the symptoms not called for the artificial evacuation of the collection, the latter might have been eliminated without surgical assistance. This spontaneous cure of empyema has often been referred to a so-called "vicarious action" of the bronchial mucous membrane. Does not this case afford a clue to the precise nature of the process; and may we not (preferring the expression of a philosophical fact to the use of a metaphor) more appropriately attribute the result to the operation of the physical law just referred to? Thus, then, the pyogenic sac was interlobar, and extended transversely across the great pulmonary fissure, coming into close proximity centrically with the heart, and externally with the chest-wall; and its contents forming a continuous fluid column received and propagated outwards the cardiac pulsation, after the manner of an aneurism.

In the next case thoracentesis was performed under the most unfavourable circumstances. Nevertheless, in the abstract it was signally successful, and prolonged the life of the patient for some months, his death at length occurring from causes having no relation to the operation.

Case 2. — Bronchitis, attended with Symptoms of General Dropsy and Engorgement of the Liver; Copious Effusion into Right Pleura, with Eccentric Displacement of Heart and Diaphragm; Relieved by Thoracentesis.—I was requested, in the July of 1860, to visit, in consultation with Dr. Smith, of Manorcunningham, a coachman of Archdeacon Goold's. He was a person of lymphatic temperament, and middle stature, aged about forty. Up to three weeks previous to my seeing him he had enjoyed tolerably good health; when, after exposure to cold, he was attacked with cough and difficulty of breathing, without stitch in the side or well-marked pyrexial symptoms; the respiratory distress increased, his legs became œdematous; and subsequently the peritoneal sac and right pleura contained liquid effusion; the liver was evidently engorged; and the patient presented an icteroid appearance; he expectorated frothy mucus in small quantities; whistling and cooing rhonchi were audible in both lungs; and the right side, from the angle of the scapula downwards, yielded a dull percussion sound; but there were as yet no distinct signs of eccentric displacement either of the heart or liver; nor was the contour of the intercostal intervals in the slightest degree altered; the urine was scanty, of high density, but contained no albumen. The cardiac rythm was regular, and unattended with augmented impulse, friction sound, or abnormal murmur of any kind. Mercury had already been pushed to ptyalism. Subsequently the iodide of potassium and diuretics were exhibited without any very beneficial results. Active purgation, by unloading the portal vessels, and diminishing hepatic fulness and abdominal effusion, afforded temporary relief. At length there came a marked aggravation of all the thoracic symptoms—choking cough, fearful breathlessness, and the most distressing sense of suffocation. There was a corresponding alteration in the physical signs; the dulness extended up to near the spine of the scapula; the heart pulsated to the left of the corresponding nipple; and the diaphragm, convex downwards, depressed the right lobe of the liver into the lumbar region, so that the latter organ lay obliquely across the abdomen, and a well-marked sulcus separated its upper edge from the hypochondriac margin; the right side of the chest, measured on a level with the ensiform cartilage, exceeded the left by nearly two inches. There were finally orthopnea, livid lips, dusky countenance, and somnolency; and I performed thoracentesis as a *dernier ressort*.

Drawing the skin to one side, I pushed a small trocar midway between the sternum and spine, through the sixth intercostal space, and having adjusted a stop-cock to the canula, drew off, by means of a strongly-expanding India rubber bag, a large basinful, and upwards, of a straw-coloured serous fluid. By

turning the stop-cock at intervals, as the bag filled itself, and carefully readjusting the latter when emptied by compression, the fluid was gradually drawn off without the possibility of the entrance of air into the pleural cavity. The patient, during the operation, became exceedingly agitated and weak, insomuch so that I thought it prudent to withdraw the canula, leaving behind a considerable quantity of liquid effusion. In an hour afterwards the patient had become tranquil, spoke hopefully, and breathed with moderate freedom; and I ascertained that the liver had ascended, and that the heart also had moved towards its normal position. Where dulness previously existed there was now a clear percussion sound, and a rustling sort of respiration was audible, with mucous bubbling; and the patient had commenced to expectorate copiously a frothy sero-mucous fluid. The liquid evacuated, upon cooling, divided itself into two portions, a tremulous jelly-like coagulum, and a clear supernatant serum. The operation was not followed by the slightest indication of pleurisy, and in 12 days the patient was able to walk about; his convalescence proceeded gradually, until all signs of hydrothorax had disappeared, so that I began to entertain hopes of his permanent recovery; but the cough and symptoms of bronchial congestion never altogether left him; he continued pale and puffy about the eyelids, and breathless upon slight exertion. Dr. Smith, who had the exclusive care of the patient for three months previous to his death, tells me that there was never any indication of a reaccumulation of fluid in the pleura, but that he became weaker from day to day, with a rapid irregular pulse, and a return of œdematous extremities. A drowsiness and wandering of the mind preceded coma, the patient dying with all the symptoms of serous apoplexy.

It would serve no useful purpose to detail the various plans proposed at different times for removing the fluid contents of the pleura in empyema and hydrothorax; nor shall I, in the few observations I am about to make, enter upon the subject of diagnosis, or discuss various other topics that are amply treated of in the ordinary medical class books; the objects I have chiefly in view are, first, to sketch briefly the particular morbid states that may call for the performance of thoracentesis, and afterwards to indicate what I conceive to be the just pathological principle which should guide us in our mode of performing the operation.

The most extraordinary fact connected with the history of paracentesis thoracis is the variable amount of success that has hitherto attended it in different hands—the most discordant results have been obtained by men of equal experience, and

possessing similar advantages for observation. Nevertheless, although individual opinion has differed so widely respecting the merits of the operation, it is now demonstrated that its general result is most encouraging, whether considered as a curative or merely palliative measure. The very important contributions of Bennett, Hughes, Hamilton Roe, and Phillips, place the statistics of the operation in a very favourable position, and have contributed in a great measure to remove the erroneous views respecting its danger, rather generally entertained by the profession. Nevertheless, much diversity of opinion still exists as to when and in what cases thoracentesis ought to be performed.

I think the following enumeration will be found to embrace nearly all the conditions under which the proceeding is likely to be contemplated:—Cases of hyperacute pleurisy, attended with rapid effusion and eccentric pressure, so formidable as to threaten suffocation; cases of pleurisy in which, after the ordinary treatment has failed to remove the effusion, the latter remains either stationary or increases; in empyema proper, or pyothorax, when the strength of the patient is unable to bear up against the suppurative crisis, or asphyxia is imminent; in cases of chronic pleurisy, or latent effusions, occurring, for the most part, in young subjects, after the failure of ordinary measures; unabsorbed effusions incident to Bright's disease, attended with dangerous thoracic distress; pleural collections, persisting as sequelæ of the exanthemata, or continued fever; passive dropsy of the pleura, attended with symptoms of impending suffocation, complicating organic desease of the heart and lungs; certain cases of pyo-pneumothorax produced by the sudden bursting of vomicæ into the pleural sac; some examples of the same condition, the consequence of sloughing of the lung and pleura; traumatic lesions, where the presence of blood, air, pus, or other effusions is productive of hazardous pressure irremediable by other means.

From a glance at the foregoing category it must appear obvious that no approach to a uniformity of symptoms or physical signs can be arrived at as an indication for the operation; the whole series, however, as respects the remedy in question, may be arranged into three groups:—

1. Cases in which thoracentesis, in the absence of symptoms of immediate urgency, may be employed ar a curative measure.

2. Cases in which the operation can only be considered as a palliative remedy.

3. Cases in which it may be had recourse to as a *dernier ressort.*

I apprehend that the greater number of the conditions above specified are such as would be considered, by the majority of

practitioners, beyond all hope of cure, or even relief, from any operative measure, still I cannot avoid entertaining a belief that the value of thoracentesis, rendered mare perfect and safe as the mode of performing it comes to rest upon sounder principles than heretofore, will, by-and-bye be generally recognised by the profession; and that the operation will be practised earlier and oftener, and on the whole, perhaps, with fewer misgivings as to the ultimate issue than paracentesis abdominis, which is, with very few exceptions, only had recourse to as a palliative remedy. Indeed it is difficult to understand the reason of the low estimation in which this valuable expedient has been hitherto held, seeing that it is neither painful nor difficult of performance. Surgeons, at various times, hesitated not to take the most unwarrantable liberties with the skull; trepanning for simple fissures, even in the absence of cerebral symptoms; making counter-openings for the extraction of foreign bodies; and employing the trephine when patients were in the agony, at the same time that the precincts of the pleural sac were held well nigh inviolate, or rarely approached except by some bold operator, and not without timidity and mistrust; nor will the imperfection of physical diagnosis explain this irrational caution or neglect of the operation so long evinced by practitioners; it is well known that many of the principles of thoracic diagnosis were understood by Hippocrates, and that pleural effusions were accurately recognised by various physicians long previous to the discoveries of Laennec.

No doubt one of the chief causes that heretofore retarded what may be called the *normal* success of the operation was the circumstance of its being seldom practised except as a *dernier ressort*; however, it is now properly employed as a means of cure in various cases of pleuritic effusion, after antiphlogistics, mercurials, iodine, diuretics, &c., have failed to effect the absorption of the fluid, and when further delay could only tend to organize pathological products, and consolidate incurable alterations of structure. Nor are instances wanting to demonstrate the signal benefit to be derived from the operation as a merely palliative remedy. Cures are recorded in the proceedings of the Dublin Pathological Society, by Drs. Corrigan, Law, and McDowell, and also by other physicians elsewhere, which are quite conclusive upon this head. Nor are there wanting numerous examples of the fortunate result of the operation even when had recourse to as an "ultimatum." The two cases that suggested the present communication were of this character; one of the patients made a perfect recovery, and is still living; the other died several months after the operation, his disease having no relation whatsoever to it.

In connexion with the various plans proposed for tapping the

chest, it appears to me that a point of paramount importance has failed to receive from surgeons the consideration it deserves, namely, the physical characters of the fluid to be evacuated. Each practitioner recommends a particular mode of operating, without any reference whatever to the quality of the pleural contents. Would, I may ask, collections in other parts of the body of serous, sero-sanguineous, sero-albuminous, and purulent fluids be treated alike, and by the same surgical procedure? Do not surgeons every day practically recognise the difference between chronic, cold, acute, symptomatic, and other abscesses and collections, and act accordingly? How comes it that pleural effusions, of whatever character, should be placed in the anomaly of having only one plan of proceeding applicable to them? Surely here must be an oversight. Until lately surgeons had an unfounded dread of opening even acute purulent collections in certain localities—for example, in connexion with the larger joints. This prejudice, however, is fast dying away; and if the practice first insisted upon by Mr. Gay were oftener and more promptly executed we should have, perhaps, fewer cases of "resection," an innovation which has of late years become so very fashionable.

Let us endeavour, then, to apply the common principles of pathology to the treatment of hydrothorax and empyema, and seek to apprehend correctly the ordinary operations of nature in the removal of these diseases. How does the spontaneous cure of pyothorax take place? Here as elsewhere the purulent matter tends to the surface, and is either discharged into the bronchi or penetrates the chest-wall through an intercostal space; atmospheric air has access to the sac of the abscess; gradually the suppurative action lessens as the cavity contracts; and, if the strength of the patient be equal to the effort a cure is effected. How differently does nature proceed in her task of eliminating serous, sero-albuminous, and non-purulent collections in the same locality. These latter are never discharged *as such* in the manner just described; they are either directly absorbed, or of necessity undergo the *purulent transformation* preparatory to their opening into the lungs, or externally. May not these considerations be suggestive as to the most eligible mode of performing thoracentesis in different instances, and moreover throw some light upon the long-debated question of the influence of atmospheric air when admitted into the pleural cavity.

It is almost superfluous to remark, that some operators suppose this gaseous body to possess a most pernicious influence, whilst others believe it to be perfectly innocuous. That atmospheric air itself exerts no irritating influence on the tissues of the body is rendered pretty evident by the phenomena of general emphysema, as also of simple pneumothorax, whether traumatic

or occurring as a consequence of rupture of a dilated air vesicle; although the cellular tissue of the body may be inflated so as to resemble a "stuffed skin," and the pleura distended almost to bursting, no erethism or reactive inflammation is the consequence of the lesion. But that atmospheric air, on some occasions, does exert a deleterious effect is unquestionable; but it so acts, not by reason of its stimulating properties, but simply because it supplies one of the conditions under which putrefaction of purulent and other fluids is likely to occur. Not that its presence is invariably followed by the chemical change in question. Laennec gives the case of a patient affected with broncho-pleural fistula, who for six years exhibited the signs of hydro-pneumo thorax without either local or constitutional distress. Louis, and various other physicians, have witnessed similar instances. In truth the precise conditions under which putrefactive changes are generated in the pleura have yet to be determined; insomuch so that we are forced to admit, in addition to the acknowledged influence of heat and air, the presence of some unknown agent or state which disposes the fluid contents to undergo catalytic changes—or how explain the cause of the latter not taking place in the cases just referred to? Enough, however, is known to warrant the exercise of great caution in performing paracentesis so as to prevent the ingress of atmospheric air in certain pleuritic effusions of the non-suppurative class; whereas purulent collections in the cavity of the chest should form, in my opinion, no exception to the ordinary manner of dealing with similar diseases elsewhere.

In short, I would apply to pyothorax, or pure empyema, the surgical principle, to which there are few exceptions in acute or subacute suppurations—that of discharging the abscess by *a free opening*. Here, however, it is necessary to inquire where the perforation should be made when the case admits of a point of election? and we may not act unwisely by interrogating the *vis medicatrix* on this head. When spontaneous openings occur, are they not generally found anteriorly and high up? Nature then indicates these positions as being the most eligible by her own operations. Nor is the object of her method obscure or unintelligible. By causing the liquid contents to proceed from below upwards she guards against the sudden evacuation of a cavity (and consequent entrance and *imprisonment* of atmospheric air in proportionate volume) the walls of which can only approximate by slow degrees; thus the suppurating sac is emptied gradually by its own contraction; and the air, which can only enter in small quantity, has *free egress*, being *always uppermost*, and in close proximity with the discharging orifice. We should therefore, in conformity with these principles, not open the chest in a depending position; for if, unfortunately, afterwards, putrefac-

tive changes take place, the septic gases floating above the other contents *have no exit*, are absorbed by the lining membrane of the cavity, excite inflammation of the latter, contaminate the blood, and produce typhoid symptoms. To prevent, then, putrid absorption, and its concomitant evils, let the empyema be opened above—that is to say (when the case admits of our doing so), between the fourth and fifth ribs, anteriorly, and provide, if necessary, for the constant drainage of the abscess by the introduction of a Chassaignac's tube.*

In cases, however, of hydrothorax, or sero-albuminous, sero-sanguineous, and passive collections in the pleural sac our operative proceedings should be guided by very different principles. In pyothorax a pyogenic membrane is already formed, and matter is making its way to the surface; by evacuating the collection we only complete an operation already commenced. But the other class of effusions referred to are very differently circumstanced; they are not included in an adventitious sac, or newly organised membrane, but lie in contact with the serous surface in a healthy condition, or only slightly altered in anatomical structure and vital endowments; the fluid evinces no tendency to reach the surface; if it disappear it is directly absorbed from the serous cavity, and is never evacuated externally without having previously undergone more or less of the purulent metamorphosis. Therefore we should endeavour, in dealing with these immature collections, to avoid all causes of irritation, and to prevent, by all means in our power, the higher or suppurative grade of action not yet attained under existing conditions; in short, we should make the practice of art approach as closely as possible to nature's own operations, and not proceed in untimely advance of them. Accordingly the fluid ought, only in the first instance, to be partially withdrawn; the remainder may be absorbed into the system; if not, the tapping may be repeated. Valvular perforation of the integuments and the employment of a vulcanised India rubber bag and stop-cock, or the ingenious trocar and canula invented by Mr. Chas. R. Thompson, will effectually prevent the entrance of atmospheric air.†

* It may be necessary, in certain cases, to make a counter opening inferiorly, and draw the tube completely across the cavity. This plan of "drainage" has been adopted in two instances, by Dr. Goodfellow, with signal success. He reports them in the 42nd Volume of the Medico-Chirurgical Transactions. The practice also of iodine injections after the cavity has been reduced to the condition of a fistula is well worthy of trial.

† As suppurative action is not anticipated in the mode of operating referred to in the text, the point of election need not, as in pyothorax, deviate from that generally selected—namely, between the fifth and sixth or sixth and seventh ribs, and midway between the sternum and spine. When any doubt exists as to the nature of the fluid, the introduction of Dr. Babington's explorator will be found preferable to the grooved needle in ordinary use.

By proceeding in this manner we do not overstrain the vital processes of the economy in their progress towards the restoration of health, but only disencumber them of impediments that check their free action, and, with full confidence in her resources, leave Nature to complete the cure by the continuance of her own efforts.

We first endeavour to comprehend the purposes and *modus operandi* of the *vis medicatrix*, and then follow faithfully in her path, without seeking, by premature interference, to reverse the natural order of pathological events, or force upon her contingencies for which she is as yet unprepared.—*Dublin Quarterly Journal, Aug.* 1862, *p.* 1.

20.—ON THE PRACTICE OF THORACENTESIS IN SEROUS EFFUSION INTO THE PLEURA.

By Dr. R. Hutchinson Powell, Physician to the Chester Infirmary.

[The well-being, nay the life of a patient, is not seldom at stake in cases in which a proper solution of this question is required. Considerable discrepancy of opinion still exists as to the practice of chest puncture in these cases: firstly, as to the description of case in which an operation of the kind may be warranted; and secondly, as to the stage of pleural effusion in which favourable results may be expected.]

Many eminent physicians, amongst whom the late Dr. Hope may be mentioned, assert that chronic pleurisy with effusion will usually yield to the administration of mercurials, iodine, diuretics, and local counter-irritation; and that when these fail, no benefit will arise from operative procedure. Moreover, objections have been raised on the grounds of the assumed dangerous results consequent thereon. The most prominent of these are—the occurrence of syncope; the risk of renewing or aggravating inflammation; and the pernicious effects of the ingress of air into the pleural sac.

On the other hand, there are not a few modern physicians, amongst whom Dr. Hamilton Roe, the late Dr. Hughes, and MM. Trousseau and Aran of Paris, may be named, who advocate an early performance of paracentesis. They hold a strong opinion, based on their professional experience, with respect to the favourable effects of the prompt removal of effusion by this method. It is affirmed by Dr. Roe that the untoward accidents just referred to never occurred once in the cases (over twenty) thus treated; that pleuritic inflammation has for the most part subsided when considerable effusion has taken place; and that renewal of the effusion subsequent to operation may be prevented by mild constitutional remedies, which will also remove any

traces of the primary affection. It is also forcibly inculcated that to withdraw the superincumbent effusion by early operation will remove a source of functional disturbance, and will speedily enable the lung to regain its normal volume and functional activity. With respect to the alleged injurious effects of the admission of air into the thoracic cavity by creating irritation in the pleura, with formation of pus or fresh exudations of lymph, such results have not been witnessed in the cases published by Dr. Roe, and successfully treated by operation. It is moreover, argued, that to try and promote absorption when this process is slow in appearing, is but to lose invaluable time, and permit of irremediable damage being done to both lung and pleura, and that the means used with this object are calculated to further debilitate the system, already reduced by disease and by the remedies resorted to, a repetition of which is as tedious in the removal as they have been powerless in the prevention of effusion. Dr. Hamilton Roe has further pointed out that the rapid effusion occasionally occurring in these cases may jeopardize the life of the patient if it be not removed by some more expeditious means than those commonly resorted to, and that an operation deferred till the strength of the patient be reduced by the disease and by depressant drugs cannot reasonably be expected to prove as successful as if performed at an early period, whilst the absorbents retain their activity and the lung its expansibility. Much depends upon accurately seizing that stage in a case where the use of drugs should be replaced by tapping. Acute symptoms, if at all present, having subsided, and a physical exploration having determined the suppression of the respiratory movement in the implicated lung, no time should be lost in removing the effusion by paracentesis. Complete restoration of respiratory function must not be looked for if the operation be delayed beyond *five or six weeks* from the commencement of the attack. *Three weeks* have been assigned as the period when it may be resorted to with the most perfect success; blistering, dry cupping, with the use of tonics (of which the tincture of the sesquichloride of iron is one of the best) and nutritious diet completing the cure. Hazardous and inefficacious medication, having, in the first instance, been discarded for the more prompt remedy, may subsequently prove beneficial and curative.

It cannot be denied that many cases of acute pleuritis, with effusion, yield to suitable medical treatment, or that tapping the chest will prove merely palliative in passive effusion consecutive to chronic structural disease. Still, instances do occur of subacute or latent pleuritic effusion attacking delicate subjects, in which the speedy and beneficial effects by tapping contrast most favourably with the often nugatory and mostly tedious effects of medicinal agents.

Now a few remarks in conclusion as to the operation and its performance. Those who practise and recommend it affirm that it is free from risk, and almost painless. We can readily admit that little or no ill effects are likely to follow from the mere penetration of a cavity lined with serous membrane, now that ovariotomy has proved comparatively successful and free from danger. The chief point to be observed in ensuring favourable results from paracentesis seems to be the speedy closure of the aperture without waiting for the removal of all the effusion, any recurring fluid being soon absorbed. Repeated tapping is to be preferred to allowing the fluid to drain from an unclosed aperture, or through a tube left *in situ*. These latter methods will, in some respect, account for the indifferent results of operation in some hands. The spot selected for puncture must, of course, depend upon the site of effusion, a complete absence being ascertained on auscultation and percussion of all signs indicating proximity of the lung in the part fixed upon for puncture. The upper edge of the sixth rib posterior to the digitation of the serratus major is the part usually chosen. The integuments and intercostal muscular fibres being incised and drawn a little downwards, a small slender trocar should be *quickly* thrust upwards and inwards through the pleural sac. The pleural membrane is sometimes pushed before the point of the trocar through the want of a little expert manipulation. It will be advisable to use previously an exploratory needle where any doubt exists as to the presence or character of the fluid in the pleural sac, purulent effusion usually requiring the most prompt operative treatment. Pressure should be made on the abdominal and thoracic parietes on the side affected, so as to promote the removal of as much fluid as possible.

There have been various contrivances recommended with a view to the exclusion of air, which, however, I believe has been charged with more hurtful effects than may be properly assigned to it. The exclusion of air may be ensured by attaching to the canula a little gut, or other thin membrane, which acts as a valve on the removal of the trocar, and prevents the ingress of air on the patient's coughing, or on the cessation of the flow of fluid. The same object is secured by closing the orifice of the canula with the index finger whilst the lung is being gradually expanded by the ingress of air through the natural channel. A stream of serum will subsequently flow without the back current of air. The whole or chief part of the effusion having been removed, the canula is withdrawn, and the edges of the wound brought together with adhesive plaster. A few turns of bandage rolled round the chest will prove useful and agreeable to the patient. The operation thus performed gives little pain, is simple, and is, I believe, divested of any injurious consequences.— *Lancet, Oct.* 11, 1862, *p.* 384.

21.—ON PLEURISY.

By Dr. Thos. K. Chambers, Physician to St. Mary's Hospital.

[The patient, a labourer, æt. twenty-nine, was admitted with anasarca of legs and abdomen of a fortnight's duration, with albuminous urine. He complained of sharp pain at both sides of the waist; this had been coming on two days, and was getting worse. A pleuritic friction sound was heard beneath both scapulæ. Twelve leeches, followed by a large poultice, relieved these symptoms by next day.]

Pure fibrinous inflammation of the pleura, usually called Pleurisy, without any affection of the pulmonary tissue, you do not often have an opportunity of seeing in the hospital wards. But you know, from your experience of post-mortem examinations, how common it must be. There are few even of the most healthy chests in which you do not see old adhesions of the pleuritic surfaces, the relics of pleurisy—sometimes in one part, sometimes in another—sometimes partial, sometimes universal,—but so common, that they were supposed to be the normal condition of the part when morbid anatomy began first to be studied. What is the reason, then, that you have so few opportunities of learning how to treat this so common disease while you are *in statu pupillari?* Simply because it is scarcely ever so severe as to bring the patient into our hospital wards, so that your only chance of observing it is when it is joined with some more alarming disorder. The man who is the occasion of these remarks would never have been admitted here had he not been taken dropsical at the same time as he caught his pleurisy.

Ninety-nine times out a hundred, pure pleurisy begins and ends with a catching pain in the side on inspiration, and a slight inflammatory fever; making the patient coddle at home, and take slops, but not employ a doctor. It would, however, be much better for him if he did, for sometimes the illness may turn out a more serious affair, and always the pain in the side and the fever may be shortened by good management, and lengthened by bad.

For example—Blisters at the commencement of pleurisy invariably protract the duration of the inflammation, and make it more severe. The property of cantharides is to cause and augment that very fibrinous state from which the membrane is already suffering. Exposure to cold, and to changes of temperature by baths and the like, makes it worse, as do strained postures of the body and exercise. Opiates also cover up the evil with an anæsthetic mask, and prevent the patient knowing how he really is. Mercury, again, is an unnecessary call upon the whole system to make destructive sacrifices for the sake of a

very small and not important member. Purgatives do no good, and expose the patient to catch cold at the watercloset.

On the other hand, the treatment you saw applied gives decided and immediate relief and prevents the danger of the disease continuing.

It is necessary, however, to remark, that the whole of it was not directed to the pleura; the vapour-bath, the diaphoretic draughts, and the jalap were intended to relieve the anasarca of the skin, and were successful in so doing; while the treatment to which I specially design to call your attention as that appropriate for pleurisy, is the application of leeches and the poultice.

The object of leeching and all local bloodletting is to relieve that inflammatory congestion, which is not only itself an evidence of loss of vital power in the local bloodvessels, but is also the cause of further loss of vital power by leading to the other steps of the inflammatory process. The bloodvessels are unable to empty themselves with their usual elasticity, so you roughly take the place of vital power and empty them artificially. You may perhaps say, that it is all very well in external inflammations, when you can directly draw off the blood which is causing the "rubor" and "tumour" visible to the naked eye, but you may doubt how the pleura, especially the pulmonary pleura, is to be affected by depleting the capillaries of the skin. It is such a long way round before you can find any vascular connexion between the parts, that you may suggest that local bloodletting is only beneficial by detracting so much blood, and that a small venesection would be more convenient and equally effectual. Now, it is not at all necessary to have a vascular connexion between separate parts for altered states and conditions of life to be propagated from one to another. I have seen in the dead body, a round circumscribed spot of costal pleura affected with fibrinous inflammation, and this had spread—not to the adjoining surface of serous membrane—not to that tissue intimately one with it in vascular connexion—but to the opposite surface of the lung, between which and its substance lay the great gulf of the pleural cavity, —the great gulf anatomically speaking, but not physiologically, as proved by this instance. Now, if this gulf can be spanned by disease—the negation, the deficiency of life—shall it not be yet easier stepped across by the remedy, the renewer of life? I do not myself feel any hesitation in believing firmly what experience seems to teach, that in inflammations of serous sacs depletion applied to the external surface has a power proportionate, not to the quantity of blood taken, but to the locality.

I have called the local detraction of blood a "renewer of life," and I think it is but fair to explain in what meaning I so

speak of it. Doubtless the taking away the vital fluid is taking away part of the body, and so is directly a destructive agent. But then blood thus lost from an inflamed part is not all loss; it is black, "melanosed," partially dead and unfitted for the purposes of life, and only a portion of it can really be called living. Then, again, granting that loss of blood is a direct loss to a living body, still the indirect gain is a full compensation to cases where it is rightly applied. The bloodvessels resume their elastic force, the blood stream is restored, and loss of substance is a regaining of function; so that a destructive becomes in the end a constructive remedy.

In the action of poultices there is no even seeming paradox to stumble at. Continuous steady warmth is the most direct agent we possess of vital development. It not merely encourages vital growth, but makes that growth take a higher form of life. Mr. Higginbottom found that different detachments of tadpoles, kept in the dark, and treated with different degrees of temperature, threw off their tails and branchiæ, and developed lungs and became frogs, with a quickness exactly proportioned to the warmth they were subjected to. Warmth, especially when kept steady and even by moisture joined with it, has the same effect on the failing life of tissues in the higher animals. It raises and restores it to its normal force of development. It renews the injured membrane, which had been lowered to that condition we call congestion or inflammation, into the higher life of warm blooded circulation. As it developed the tadpole into the frog, so it developes the half-killed diseased part into full life.

But you must take care not to follow up the application of invigorating warmth by the depressing influence of cold, or it becomes doubly depressing by contrast. Your poultice must be kept on hot and hot till all pain has gone, and the breath can be drawn quite freely and easily. And it will do no harm to induce your patient to retain it even a little longer, as was done in this case. Such means will not fail to cut short an attack of pure pleurisy.—*Lancet, Sept.* 13, 1862, *p.* 277.

DISEASES OF THE ORGANS OF DIGESTION.

22.—ON A CASE OF CHRONIC DYSENTERY SUCCESSFULLY TREATED WITH IPECACUANHA.

By Dr. William Gayton, London.

The following case, I think, goes far to prove the efficacy of ipecacuanha powder in the treatment of chronic dysentery; it closely resembles the one that appeared in the Lancet of July 19.

J. I., aged forty-two, a sallow, cachetic looking man, applied to me for advice in the early part of June; he had then been under treatment for ten months, but not receiving any immediate benefit from his medical advisers, he was unfortunately constantly shifting from one to another. His condition was as follows: Extreme emaciation with anxiety of countenance; severe pain in the hypogastric and iliac regions; pulse 110, small and weak; skin hot and dry; tongue preternaturally red. He had about twenty motions in the twenty-four hours, accompanied with acute pain, shivering, and tenesmus. His appetite was much impaired, and the dejections were loose, slimy, and contained blood.

Before adopting any plan of treatment, I carefully pointed out the necessity of remaining under one medical man's care, and the probability that a considerable portion of time would necessarily elapse before he would perceive any decided alteration in his condition. I felt so confident that much permanent relief might be afforded him, that to the question, "Shall I ever get well, Sir," I unhesitatingly gave an affirmative answer, provided he promised strict compliance to my injunctions.

On June 5th, I ordered him to take every six hours a pill composed of a grain of sulphate of copper with half a grain of solid opium, and a mixture of decoction of logwood. He was enjoined to keep in the recumbent posture as much as possible, and live principally on fish and light puddings.

6th. Feels somewhat better. Bowels been relieved nine times in the twenty-four hours; not so much straining, but still severe pain; the motions contain much blood.

9th. Suffers much from dyspepsia. Bowels still very much open, they are of the same character but with less blood; to take a bismuth mixture and continue with the pills.

17th. Complains of the pain being more griping than ever; the bowels are not so much relaxed, but the abdomen is very tense, and tympanitic pressure increasing the pain very materially; to leave off the pills, but to continue with the mixture with the addition of decoction of logwood.

20th. The pain and tenderness have disappeared, but the purging has increased. He has had twelve evacuations since yesterday; there is increased anxiety of countenance, and the appetite is much impaired; to take one grain of diacetate of lead with five grains of compound kino powder twice a-day.

July 9th. He has about six dejections per diem; they contain no blood, and there is but little pain or tenesmus; to continue as before.

19th. The pain, tenesmus, and relaxation having returned, and the patient being in a very unsatisfactory condition, I advised the friends to have another opinion. Dr. Munk kindly

met me in consultation. His condition then was altogether bad; having a business to attend to, he had been unwillingly obliged to neglect certain orders I had given him; the evacuations then were about ten or twelve in the course of the day and night; he had lost much flesh, and his spirits were very dejected; there was blood in the motions, but not so much as when I first saw him; a pill was admininistered every four hours, consisting of one grain of sulphate of copper, one grain of powdered opium, and one grain of extract of stramonium, and a mixture of aromatic confection and cinnamon water. A blister was also applied to the right iliac region. Dr. Munk strongly insisted upon the necessity of his keeping entirely to his bed and foregoing all kinds of food which were of an indigestible nature; the pills of sulphate of copper and opium had been discontinued, owing to the severe pain they appeared to cause.

20th. Seems somewhat better; the bowels are less purged, and there is no blood in the motions; pulse 104; tongue exceedingly red and glazed.

22nd. Is much the same; the bowels have been relieved eleven times since I saw him yesterday; there is much straining at stools, and tenesmus; the pain over the abdomen is but slightly abated, and there is extreme lowness of spirits. I decided upon giving the ipecacuanha powder, which was exhibited as follows:—

℞. Plumbi diacetatis gr. iij.; pulv. ipecac. gr. xviij.; conf. rosæ q. s. ut fiant. Pil. ix. Capiat iij. 8vis hôris. ℞. Liq. cinch. (Battley's) ℥j.; tincturæ opii ℿxx.; aquæ ad ℥iv. M. Capt. quartam partem 4tâ quâque hôra.

24th. Bowels been relieved eight times in the last twenty-four hours; there is not so much straining, nor is blood present in the evacuations; he keeps the recumbent posture, and expresses himself as feeling better in his general health. As there is still a great deal of pain over the abdomen, he was ordered to rub the hypogastric and iliac regions gently with the following embrocation:—

℞. Olei terebinth. ℥ss.; tincturæ opii ℥jss.; lin. saponis ℥xss. M. ft. embrocatio.

August 2nd. He has had only six stools during the last day and night; they are more consistent and of a natural colour, but contain a little blood. His expression of countenance is less anxious, and there is a decided general improvement.

For three weeks from this date he remained constantly in bed, and persevered in the same treatment; the number of dejections per diem gradually decreased, the tongue lost its unnatural glazed red appearance, the appetite returned, and all the functions were performed in a regular and healthy manner;

most of the anxiety of countenance has disappeared, and he is now able to attend more or less to his business.

Upon referring to Dr. Watson's Lectures and other authors I find no mention of ipecacuanha. I conclude, therefore, that the properties of this drug in the treatment of chronic dysentery are not either sufficiently valued or known ; the foregoing case may, perhaps, go some way to assist in extolling its merits, and to bear out the truthfulness and excellency of Dr. Willshire's remarks.—*Med. Times and Gazette, Sept.* 27, 1862, *p.* 323.

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23. — ON JAUNDICE : ITS PATHOLOGY AND TREATMENT.

By Dr. George Harley, Professor in University College, London.

It is universally admitted that the facility of the diagnosis of jaundice is only equalled by the obscurity of its pathology and the uncertainty of its treatment. In this communication, therefore, the author set about unravelling the nature of the various morbid conditions which give rise to it ; and pointed out how, notwithstanding the seeming discord, they could all appropriately come under the two common heads of "jaundice from suppression of the biliary function," and "jaundice from the reabsorption of the secreted but retained bile." Moreover, Dr. Harley showed that the pathology of jaundice resulting from suppression is totally different from that arising from obstruction ; and, consequently, that a line of treatment which would be appropriate and beneficial in the one form, would be detrimental, if not actually hazardous, in the other. Fortunately, however, the author pointed out a new method of distinguishing the two forms of the disease when all the ordinary means of symptomatic and physical diagnosis prove unavailing. The method consists in analyzing the urine, which, he finds, contains different morbid products according to the particular form of the disease. Thus, for example, in jaundice from suppression the urine contains only those biliary ingredients which exist preformed in the blood. In jaundice from obstruction, on the other hand, the urine contains, in addition to these, the materials generated in the liver itself, and which have been reabsorbed into the circulation from the distended gall-bladder and ducts. A simple mode of distinguishing the two conditions is, to add to about two drachms of urine half a drachm of strong sulphuric acid, and a fragment of loaf-sugar the size of a pea. If at the time of contact of the two liquids a scarlet or purple colour is produced, it proves that the acids of the bile are present, and the case may consequently be put down as one

of jaundice from obstruction. On the other hand, if no bile-acid reaction, but merely a browning of the sugar, be observed, the case is in all probability one of suppression. Dr. Harley pointed out, however, that care must be taken not to confound the two cases; as jaundice from obstruction, especially the severe form, often merges into jaundice from suppression.

The author also confirmed Frerich's statement regarding the presence of tyrosine and leucine in the urine of acute atrophy of the liver; and further stated that he had also found these substances in the urine of chronic atrophy, so that their presence might aid in the diagnosis of the latter as well as of the former condition of the hepatic organ. Several cases were cited illustrating the value of the different methods of diagnosis; and the author concluded by pointing out the class of cases in which mercury and other remedies were likely to be beneficial, and where they were likely to do injury. He specially recommended the employment of benzoic acid in jaundice from suppression, and inspissated bile in that arising from obstruction, in which latter class the patient frequently dies from slow starvation, in consequence of the absence of bile in the digestive process causing imperfect assimilation of the food to take place. Dr. Harley also called special attention to the fact that bile, as now employed, more frequently does harm than good; for when given along with the food, instead of aiding the digestive process, it actually retards it by interfering with the action of the gastric juice. If, on the other hand, bile be administered, as the author proposes, at the end of stomachal digestion, it acts (as in the healthy organism) on the chyme, and renders it fit for absorption. In order still further to insure this desirable object, Dr. Harley has had bile specially prepared and put up into capsules, which are not readily acted on by the gastric juice, but which, on being dissolved in the duodenum, allow the bile to come in contact with the food at the proper moment, and thereby enable the physician to imitate nature, and supply an important element to the system.

Dr. Edward Smith, after dwelling upon the great interest of the paper, referred to two subjects explained in it which had struck him—the importance of determining the amount of urea evolved, and the alleged mode of action of acids and alkalies. In the case referred to there had been a large ingestion of nitrogenized food, and yet the amount of urea had diminished from about 450 grains per day, which at fifty years of age would be about the standard quantity, to between 300 and 400 grains—a fact which proved clearly that a large portion of the nitrogenized food had not entered the blood, but had passed off by the bowel. He thought the determination of the amount of urea in cases of defective assimilation was of the utmost value; but

since there were normally great variations in the daily elimination of urea, it was essential that experiments should be extended over several days successively; and it would be more satisfactory to determine at the same time the quantity of nitrogen eliminated by the bowel. He considered that the explanation of the mode of action of acids and alkalies was most ingenious, but he doubted as to its validity. It might be, as suggested by the author, that an alkali being given, excited the formation of gastric acids, which then passed into the bowel and interfered with the alkalinity of the biliary and pancreatic juices, and thus prejudiced the digestion of fats; but, if so, the smaller the quantity of alkali administered, the less amount of acid secretions would be induced. Without admitting or denying the explanation, he must affirm that alkalies were very serviceable in numerous cases of jaundice.

Dr. Chambers said the author had referred to jaundice caused by pneumonia and the zymotic fevers, but had not explained how it occurred. He wished to ask the author if in these cases he had examined the blood, and if so, in what state and form the colouring matter was found. In pneumonia there is colouring matter in the fæces and urine, and also in the skin, and the serum of the patient's blood is dark. In these cases there is no obstruction of the bile-ducts. It was said by some that jaundice occurred in those cases of pneumonia in which the right lung was affected; but he (Dr. Chambers) had found it in cases of pneumonia on the left side. Again, in zymotic fevers there was no local action. Cases of this kind had an important bearing on the explanation of jaundice.

Dr. Marcet said the examination of the fæces would often clear up difficulties in the diagnosis of the cause of jaundice. If the bile is retained, there is in the fæces an abnormal quantity of fat, and hence the fæces are white, and by alcohol much fat may be extracted. There was not, however, enough to be recognised by the eye. The fatty matter does not exist as neutral fat, but as fatty acids. This passage of fatty matter showed that it was not the pancreas alone which had to do with the digestion of fats. In reference to the method of administering the bile by the stomach in cases of jaundice, he (Dr. Marcet) thought there would be considerable danger of inducing vomiting.—*Lancet, May* 24, 1862, *p.* 543.

24.—ON THE VALUE OF URINARY ANALYSIS IN THE DIAGNOSIS AND TREATMENT OF HEPATIC DISEASE.

By Dr. George Harley, Professor of Physiology in University College, London.

[The fact is gradually becoming apparent that a knowledge of

the condition of the urine is of as great assistance in the diagnosis of affections of the liver as in those of the kidney.]

Hitherto, the only physical means we possessed of detecting and distinguishing the various forms of hepatic disease have not gone beyond the acquiring a knowledge of the position and size of the liver by percussion, the absence of bile from the stools by inspection, and of the presence of biliary pigment in the urine by the application of nitric acid to that secretion. Every one, however, must have met with cases of obscure hepatic disease where these means of research proved totally inadequate to their requirements. This circumstance has led several practitioners to seek for further aids to diagnosis in such cases, and consequently at various times during the last few years, valuable suggestions have fallen from different members of our profession, both here and abroad. For example, *firstly*, Dr. Eiselt, of Prague, has called attention to the fact that in cases of melanotic cancer of the liver, the true nature of the affection may be sometimes discovered during life by the presence of melanine in the patient's urine. Urine containing melanine, although of the normal colour when first passed, gradually becomes of a dark hue, even as dark as porter, when left for some hours exposed to the air. This change appears to be the result of a slow oxidation of the pigment.

In the *second* place, Frerichs, in his admirable treatise on diseases of the liver, states that two substances *tyrosine* and *leucine* which were formerly only known to the scientific chemist, are invariably to be found in the urine of patients labouring under acute or yellow atrophy of the liver. I have been able to verify this statement in the case of a young married woman, who died from this most fatal form of disease. Dr. Wilks brought the case some time since under the notice of the Pathological Society, and a report of it may be found in the Transactions.

In an interesting case of chronic atrophy of the liver, the result of obstruction from disease of the pancreas I was enabled to detect both tyrosine and leucine in the urine. I several times saw this case along with Mr. Prance, and it was interesting to notice that, as the disease advanced, the quantity of the abnormal ingredients gradually increased. After death crystals of tyrosine were found even in the tissue of the liver itself.

I would strongly recommend that in all cases of obscure hepatic disease these substances should be looked for, and (if present) in the majority of cases they may readily be detected in the concentrated urine by means of the microscope. The tyrosine appears as needles and little stars, the leucine as round yellow balls, some of which are occasionally spiculated.

Thirdly, it is of essential importance to be able to distinguish between the jaundice arising from suppression, and that which is caused by obstruction (two forms of disease so ably described by Dr. Budd), for it need hardly be remarked that the treatment necessary for the one is wholly inapplicable to the other. Although much difference of opinion has hitherto existed regarding the presence of the biliary acids in the renal secretion in cases of hepatic disease, this discrepancy has, I think, arisen from the fact that sufficient attention has not been paid to the kind of jaundice under which the patient laboured, and it is the object of the present communication to point out a very simple process, by means of which greater precision may be given to this very important point in the diagnosis of jaundice.

Now it may be laid down as a rule that when bile acids are found in the urine in any appreciable quantity their presence may be regarded as a certain sign of the existence of some obstruction in the course, or at the termination of the common bile duct.

The readiest mode by which these acids may be detected is the following:—To a little of the suspected urine add a small piece of white sugar, and afterwards pour on gently a little strong sulphuric acid; this should be done so as not to mix the two fluids. If the biliary acids be present there will be observed, at the line of contact of the liquids, after standing for a few minutes, *a deep purple hue.* This result may be taken as a sure indication that the jaundice is due to obstructed bile ducts. On the other hand, the absence of this phenomenon, and the occurrence of merely a *brown* instead of the purple tint, is equally indicative of suppression.—*London Medical Review, Sept.* 1862, *p.* 128.

SURGERY.

AFFECTIONS OF THE BONES AND JOINTS, ETC.

25.—ON HIP-JOINT DISEASE.

By JOHN HILTON, Esq., F.R.S., Surgeon to Guy's Hospital.

[The following opinions of this eminent surgeon are of great value. He says:]

I may say that I have never seen a severe case of hip-joint disease under treatment by rest where the patient has not been improved in general health by rest in bed. As a rule, nearly all the constitutional disturbance has usually disappeared after a short time—two, three, or four weeks. In my opinion, then, it is not sound in argument nor true in fact, to state that the general health of a patient who has hip-joint disease suffers uncompensated injury by lying in bed and keeping the diseased parts perfectly quiet.

One of the most frequent, and sometimes ultimately one of the most important, concomitants of hip disease is abscess; but it does not necessarily follow, because we find an abscess near a diseased joint, that it should be in direct communication with the interior of that joint. I have several times seen in the groin and in the popliteal region small abscesses associated with the hip-joint and knee-joint respectively, but simply depending upon an indirect communication through the medium of the lymphatics, and not the result of a direct extension of suppuration from within the knee or the hip-joint. I have also seen the following erroneous interpretation committed in consultation—viz., that the existence of enlarged glands in the groin, associated with hip or knee-joint disease, or the like glandular condition in the popliteal space connected with knee-joint disease, and a similar state of enlarged glands just above the internal condyle or within the axilla, and accompanying disease of the elbow-joint,—I have known these states mistaken as marked local evidence of scrofula; but such glands have entirely subsided as soon as the diseased joints have got well, thus showing their association simply with lymphatic absorption, and arrest of morbid fluid within the glands. No doubt, however, the rule is, that when deep suppuration occurs in close proximity to a diseased joint, it communicates directly with the interior

of that joint, and then the question is brought before the surgeon for his decision as to what is to be done with the abscess.

[With respect to *the propriety of opening abscesses connected with diseased joints*, Mr. Hilton goes on to say that the recommendation to open an abscess immediately it shows itself, is one fraught with extreme danger to the patient, and marks the indiscretion of the surgeon. The attainment of physiological rest to the general circulation and to the general health ought to be the guiding principle to direct us in the right course.]

In the first place, we know that the healing process of the deeper seated parts of the body always goes on better when the injured or diseased structures are not exposed to the external air; and it must be admitted that if we open an abscess, communicating with the hip-joint, for example, or any other joint, and keep it open, we permit the contact of the oxygen of the atmosphere with its interior. It is well known that oxygen is the chief agent—or starting point, if I may so term it, without going into the chemical associations of oxygen—in the putrefactive process; and it seems to be pretty well ascertained that if you exclude oxygen from dead animal tissues, they will not become decomposed. So again, if we have a cut, or raw surfaces, upon the finger or hand, and the denuded structures be exposed to the atmospheric air, we suffer pain, irritation, and local inflammation; cover the raw surfaces with some harmless material, exclude the irritating influence of the oxygen upon them, and immediately all pain subsides. Thus we have presented to us analogically the evidence by examples of the deteriorating influence resulting from the admission of oxygen into the interior of an abscess.

Experience teaches us that so long as an abscesss remains unopened, and its walls are kept free from local disturbance by the muscles or other causes, usually no inflammatory condition is manifested upon the walls of the abscess. Then one might fairly say to oneself,—"Why open it? why not leave it alone? It is not doing harm in any way, either as regards the original local disease, or the general health; why meddle with it?" On the other hand, all surgeons know that when such an abscess is opened, it becomes, or it may become, inflamed, and great local and constitutional disturbance may supervene; the effects of that inflammation will be that the originally diseased parts, as well as the new repairing structures within and without the joint, will participate in both the local and constitutional disturbance, which lowers their vitality; and they soften down or ulcerate, and become subservient to the law, *that inflamed or newly-formed or renewed structures suffer rapid deterioration from constitutional or local disturbance.* This is no exaggerated state-

ment: I have seen many illustrations of it. Thus, we know that if a person has had an ulcer recently healed up healthily, or a cicatrix which has well closed after a burn or scald, if he contracts erysipelas (a blood-poison), not at the seat of injury, but elsewhere, or is attacked by small-pox, scarlet fever, or measles (blood-poisons), the cicatrix, which was perfectly healed, will quickly ulcerate, break down, disintegrate, or entirely melt away. If this be true with regard to external parts, may we not argue that it is equally true with regard to internal parts? If we can see the fact manifested on the surface of the body, that scarlet fever, erysipelas, &c., or local inflammation, can so damage new tissues as to lead to their destruction, whilst those which have not been previously diseased or structurally deteriorated will pass unscathed through that ordeal, surely that is a potent argument against the propriety of opening these abscesses early. These facts form the basis of one of our arguments against the propriety of opening an abscess connected with a diseased joint before it is absolutely necessary, or before the medium of reparation deposited within or about the joint, or interposed between the bones, is so completely consolidated, and so efficently organized, that it is structurally competent to resist the twofold deteriorating influences of local and constitutional disturbance, or of either of them.

Let us look at this subject from another point of view. If a person suffers from the escape of a large quantity of pus daily, may we not deem it tantamount to his being bled to some extent every day? I think we may; and assuredly, if we were desirous of inducing a healthy local process, or of aiding the general power of repair in a patient, we would not draw even a few drops of blood daily from him, with the hope or intention of improving either his general heath or the local disease. That would be adverse to sound physiological principles, against common sense, and opposed to the sustained experience of every one. If a large chronic abscess be opened, it very often, nay it generally, happens that its interior surface freely pours out an abundance of serum, lymph, and pus; and it must be admitted that the more it discharges the more it drains the patient indirectly of his blood, so that, I apprehend, he is, under such circumstances, being bled every day, and it is painfully apparent that his health becomes greatly, and sometimes fatally, damaged by it. Nothing can exemplify this position more emphatically than the case of psoas abscess. We see cases where a large psoas abscess exists, and the patient scarcely suffers at all; but directly the abscess is opened, and opportunity is given for it to discharge its contents, from that point starts a course of events which ultimately lead to the patient's lingering death.

A gentleman from Essex brought to me his only son (nearly

twenty-one years old) of a numerous family, having a large abscess extending under and below Poupart's ligament, associated with diseased spine. The young man had not suffered any pain, nor was his general health declining, and he went out of doors taking exercise every day. His surgeon suggested that I should see him, as he did not wish to open the abscess. I acquiesced in that advice, and explained to the distressed father the probable contingencies of his son's condition. He went home, and was kept lying down. Soon the abscess began to discharge. From that day he had an exhausting illness, which gradually wore him out, and in a few months he died, in spite of all that could be done for him. He was bled to death by the profuse discharge.

Instead of hesitating as to what we should do in the case of an abscess communicating with a diseased hip-joint, I would advise that the opening be deferred as long as possible, until we can be pretty well satisfied that anchylosis or bony consolidation has actually taken place at the joint. If the bony union be perfect, then we may open the abscess without involving the patient in undue risk, as regards the repair of the joint, or as regards the general health.

I may conclude the reasons for recommending delay in opening these chronic abscesses with joint disease by reminding you that the abscess may be absorbed, and without any harm to the patient. Most surgeons have seen associated with hip disease the clearest possible evidence of fluctuation from a considerable collection, probably, of purulent fluid in the thigh, and have yet witnessed the spontaneous disappearance of that fluctuating swelling. One of the cases which I have already detailed, and some others which I shall hereafter adduce, open up this question,—Is it possible for an abscess to be absorbed? I may reply, that I have not the least doubt about it. I have no doubt whatever that those portions of the contents of an abscess which are not absolutely solid, can be completely absorbed. The solid residuum may remain permanently fixed amongst the surrounding soft parts, not doing or leading to any mischief, except, perhaps, the patient should suffer from typhus fever, scarlet fever, measles, or any other physical or moral cause producing severe constitutional depression; as we see exemplified in the cases of bullets that have been buried in the living body for many years, without producing any detrimental effect until some serious injury to the general health occurs, and then there is a discharge. Four years since I saw professionally a general officer who fought in Egypt against the first Napoleon, and who at that time received a bullet in his right groin; it remains somewhere in his pelvis, and he informed me that he never felt any inconvenience from it except when his health got out of order, and

then occurred a small discharge from the wound in the groin. I am, then, strongly of opinion that abscesses can be absorbed without any danger to the patient. On the other hand, I do not assert, nor even suggest, that pus can be absorbed, as pus, without fearful injury and imminent danger to the patient; but I apprehend that before what may be termed healthy absorption of an abscess occurs, the pus globules are broken up, and then the altered fluid results of the abscess may be absorbed without injury to the constitution. The solid parts of the abscess may remain.

In the year 1850 I had a patient under my care at Guy's Hospital, in whose forearm there was a large chronic abscess, and thinking it a case in which I might put the question of absorption of pus to the test, without risk to the patient, I passed a fine trocar and canula into it under the adjoining healthy skin, so as to draw off a small quantity of pus. That I might be sure there was no mistake about the character of the fluid in this case, a small quantity of healthy pus (which I had examined microscopically) was drawn off, and then the aperture in the skin was carefully closed. The abscess was kept quiet by the arm being placed upon a splint. In a few weeks, and without any constitutional disturbance, the abscess completely disappeared. The patient died some months afterwards from disease of the chest, and I looked with interest to discover the remains of the old abscess at its former site, and there I found some solid cretaceous-looking material, which was doubtless the residuum of the abscess, interposed between the fascia and the subjacent muscles. Anxious to be quite satisfied on this head. I requested my friend, Dr. Odling, to undertake the chemical examination of this residuum, and here is the result in his own words:—"A tough substance, of a yellowish colour, having the appearance of artificially-dried pus. Like the solid residuum of pus, it consisted principally of a butyraceous fat, and of soluble and insoluble albumen, but also yielded an aqueous extractive, or pyin, and an alcoholic extractive. The mineral constituents were chiefly chlorides, sulphates, and phosphates of soda and lime, corresponding with the constituents of the ash of pus."

I think I could not place a more conclusive case before you in answer to the question,—Is it possible for an abscess to be absorbed? The abscess in this case was proved to demonstration to exist; pus was drawn off and examined microscopically; all the fluid portion of it disappeared by absorption, and probably less of the solid residue would have been found if the patient had lived longer.

[Seeing that an abscess containing even a pint of matter may be gradually absorbed and disappear, it may be asked,—What

are the conditions of an abscess (associated, say, with hip-joint disease) which recommend or justify making an opening into it by the surgeon?]

If the abscess be enlarging very rapidly, and Nature seems incompetent, from her feebleness (a bad indication), to make a successful effort to limit it by a natural barrier, the opening may be made, and half, or more, of the pus be drawn off (without squeezing the abscess.) The opening should be immediately and carefully closed up, lest the outpouring of the fluid may be continuous, and a drain of pus be produced so as to affect the general health; the abscess to be subsequently supported by plaster or bandage, in order to keep it at rest.

If the walls of the abscess be inflamed, hot, and painful, with great febrile and constitutional disturbance,—or if the abscess contain air (resonant on percussion,) from decomposition, mixed with the fluid, the opening ought to be made complete, large enough, and at the most depending part of the abscess, so as to allow gravitation to determine at once the evacuation of the whole of the fluid in the abscess. And subsequently the walls of the abscess should be kept in contact for the purpose of inducing, by pressure and rest, mutual adhesion, and of limiting the extent of surface capable of secreting too abundantly *pus*, *serum*, or *lymph*, which would diminish both the quality and quantity of the blood, and so deteriorate the general health.

In all the cases of hip disease which I shall detail, a straight splint was applied. I believe the impression is abroad, that by applying a straight splint to cases of this kind we are likely to make an inconvenient limb for the patient, in consequence of the limb being fixed straighter than the other, and that that position would necessarily interfere with progression; and probably it would be so if the limb retained its proper length. But it is the fact that the diseased limb does not grow quite so fast as the other; hence it is always a little the shorter. And, again, although a straight splint be applied, the direction of the thigh-bone is scarcely ever perfectly straight downwards from the pelvis, but a little forwards and downwards. I do not, therefore, acquiesce in the view of some surgeons, that it is better to put on a splint which makes the hip-joint permanently somewhat flexed. I believe, on the whole, a straight splint is the best.—*Lancet*, *July* 5, 12, *and* 19, 1862, *pp.* 4, 29, 57.

26.—CASES SHOWING THE INFLUENCE OF REST IN THE TREATMENT OF DISEASES OF THE SPINE.

By John Hilton, Esq., F.R.S., Surgeon to Guy's Hospital.

[In January, 1860, a little child was brought to Mr. Hilton suffering from diseased hip-joint. The child was delicate. She

had had severe pain in the hip for a week. She was very lame, and could not bear any weight on the left leg. There was considerable constitutional disturbance.]

On examination I found the hip-joint free from pain; that is, on movement of the hip-joint—isolated movement—the patient experienced no pain, nor was there, by any manipulative experiment, the slightest evidence of any local heat at the hip-joint. Although there was no pain in the left hip-joint, she presented all the "outlying symptoms" of disease in that joint—lameness, pain in the knee and hip, thigh a little advanced, intense pain in the hip on striking the sole of the foot with the hand, and flattening of the nates on the left side. On placing her recombent, and manipulating the hip-joint alone, she expressed no feeling of pain. There was no increase of heat (the pathognomonic sign of local inflammation) in the neighbourhood of the hip-joint, and no unusual tenderness on pressing over the joint below Poupart's ligament. But on pressing the os innominatum towards the sacrum she complained bitterly. The same thing occurred on making pressure upon the last lumbar vertebra and upper part of the sacrum. There was also pain on deep pressure towards the posterior and superior part of the sacro-iliac articulation. Some increase of heat was to be felt in this neighbourhood by placing the palm of the hand upon it, and by comparing the temperature of the corresponding parts on the opposite side. Thus the case was made out to be disease between the lower lumbar vertebra, sacrum, and ilium. On seeking for a cause of this local disease (it only came out upon subsequent inquiry), it was remembered that about six weeks before the lameness she had fallen upon the ice, but the fall produced no urgent symptom beyond temporary lameness. Spine disease seldom manifests itself only on one side in children, so I was disposed to attribute the mischief to the upper part of the sacro-iliac symphysis. The case was to be treated simply by mechanical rest, and the only way of securing rest to these parts is by the patient lying down uninterruptedly. This plan was carried out perfectly. The constitutional disturbance subsided in a fortnight. In two months, in direct opposition to my previous strongly-expressed wishes (as she appeared to be in every respect so well), she was allowed by her parents to get up and walk about, and soon afterwards unmeasured exercise was taken.

In a few weeks the lameness and all the other untoward symptoms were again apparent, with occasional shivering. These symptoms continued uncontrolled, and she was allowed to be moving about the house until she was brought to me in the early part of June, 1860. She was then accompanied by the family surgeon, who said he was excessively sorry to see these

nice quiet people, good patients, and so on, so distressed about their poor scrofulous little child, with a diseased spine, and a large abscess forming; adding confidentially to myself, that although the case was utterly hopeless as regards the treatment, still he thought it right to bring the case for me to see, as I had seen it before. An abscess could now be distinctly felt, deeply-seated upon the inner and posterior part of the ilium, on its pelvic aspect, near the sacrum and last lumbar vertebra; and there was some increase of heat and abnormal firmness of the surrounding soft parts. A hemlock poultice with bread was ordered to be applied over the abscess, and the recumbent supine position to be again resumed, and continued without intermission. The mother was now willing to carry out this plan of "rest" carefully, and for any extent of time. The child was to take the air daily, weather permitting, in a little four-wheel carriage. The diet was to be good, but not stimulating. It was intended that the patient should go to the sea-side for the remainder of the summer, but some domestic circumstances interfered with this arrangement, and she was kept at home in the country. The abscess opened of itself in September, near the posterior part of the crest of the ilium. It broke in the night, and nearly a quart of matter came away, soaking through the blanket and mattress; and abundant pus, serum, shreds of lymph, and more solid scrofulous-looking material were discharged. The health remained good. The abscess gradually ceased to secrete, and I saw the patient in January, 1861, well.

Now, observe, this patient is the subject of a second injury. She lies in bed for several months continuously, and her health is actually improved by it. Here is a case strongly supporting the opinion I advanced the other day, that when you have a serious disease disturbing the health it is not true that rest in bed is uncompensated; for here is a child, suffering severely as regards health, kept lying in bed, securing the parts from disturbance, and after seven months persistent rest in the recumbent position, her health has gradually improved; so that the expression that her health remains perfectly good is not exaggerated. The abscess by degrees ceased to secrete, and when I saw her in January, 1861 (up to which time she had been lying down), she could stand up and walk without pain. She was fat, plump, and in every respect well, except that there was a little weeping of thin fluid from the mouth of the sinus of the abscess; there was no pain anywhere. The fourth and fifth lumbar vertebræ seem firmly consolidated, and do not yield like the other vertebræ on bending the spine. The discharge ceased in February, 1861, when she was brought to me, at my request; and I thought I might detail her case here last year. She is now, and has been since January, 1861, perfectly well in health. The lower lumbar

vertebra projects backwards a little, but not abruptly. She runs about with the other children, up and down stairs, and stoops to pick up anything off the floor. She is now six years and nine months old. Here is a case, then, of diseased spine putting on the symptoms of hip-joint disease, with extensive suppuration. The child was thought to be scrofulous by both parents and by the surgeon in attendance; but, in spite of that, the child is now, I believe, perfectly well, without a drawback. This is a case which I think shows conclusively the value of mechanical rest in the treatment of cases of this kind.

Severe disease of spine, close to pelvis, cured by "rest."—In the summer of 1851, Miss A. fell down stairs and bruised her back, in the lumbar region. This was soon followed by pain and some tenderness at the part, as well as some pain in the legs. The pain and weakness in the back increased, with some loss of power in the lower extremities, accompanied by a marked inability to sit up long, or to go up and down stairs, the pain in the legs being very severe. She consulted several London surgeons and physicians, all of whom advised tonic plans of treatment, change of air, exercise, and counter-irritation. One surgeon treated her most energetically for neuralgia. These varied kinds of treatment were pursued with irregularity, and without any benefit to the patient, up to the time when I saw this lady in 1854, nearly three years from the beginning of her symptoms. She was then emaciated and weak, had a frequent and irritating cough, with hectic and distressed facial aspect and rapid pulse, and her health was reported to me as very greatly deteriorated and still going down. She could walk but a very short distance, and that with difficulty. She had pains and cramps, and diminished sensibility in both legs, and she could not stand upright without support; both legs were somewhat wasted. The fourth and fifth lumbar vertebræ were painful on pressure, and slightly projecting backwards; pressure upon them producing a severe pricking sensation down the left leg, in the course of the branches of the anterior crural nerve. Deep in the loin on the right side the fluctuation of an abscess could be detected, extending towards the crest of the right ilium. The abscess was opened; her health gave way, and she really appeared to be on the very verge of the grave. I then had her placed on one of Alderman's beds, and removed in an invalid carriage to Brighton. She remained on the couch uninterruptedly, never quitting it, except for the purposes of personal cleanliness, during five months, and then she was lifted horizontally off the bed on to a couch or sofa, and put back when the bed was ready for her. Her health gradually and quickly improved; and at the expiration of a few months all the pain in both legs, and the

pricking sensation in the left, had disappeared, and both legs were improved in size and power. She continued recumbent until the discharge had ceased, and all the wounds had healed. At the expiration of fifteen months she could stand upright without pain, and, after a few days, with confidence in herself. Taking walking exercise with crutches, she gradually got well. She is now, and has been ever since that time, in perfectly good good health, with not a single drawback in respect to her condition.

This case, then, shows the value of rest. I am quite confident that had the patient not been compelled to lie down, and had not great care been taken of her, she would have died.

Case of disease between the sacrum and ilium, with intense pain in the leg on the same side of the body.—This case, with which I shall conclude, is of much interest—in one respect especially, because I was enabled by the recognition of the course of the nerves to the leg to ascertain the real character of the case, the true position of the cause of the symptoms, and thence to deduce the proper plan of treatment. The details are not very long.

On November 23rd, 1861, I was requested to see, with Mr. Barnes, of Chelsea, a young gentleman who was suffering, and had been suffering for some considerable time, with intense pain in the calf of his right leg, the thigh slightly flexed, and inabilty to walk or stand upon the limb. He was sitting upon a couch, the limb every now and then jumping involuntarily, and he crying out with pain. This occurred several times while I was in the room. He had shockingly bad nights. I requested that I might have all the possible details of the history placed before me in anticipation of any personal examination. It appeared that on April 24th, 1860, the lad slipped down stairs and struck the lower part of his back, but no direct injury was suspected. He soon became lame in the right leg, and in attempting to walk his foot turned somewhat inwards. He continued lame and weak in the right leg for nearly three months, after which time he gradually resumed the natural occupations of his period of life. He had repeated attacks of lameness arising from slight casual accidents. In February, 1861, whilst bowling his hoop, he trod unexpectedly, and with force, upon a stone, and sprained his foot; and from that time he became again very lame, and went about on crutches. In the early part of October, 1861, he had a third slip and fall; and from that time he could not stand or move about without pain in his right leg below the knee, with cramps in the calf of that leg. During six weeks the pain in his leg was fearful day and night, depriving him of sleep, and distressing his general health very much. He was lifted off his bed and carried to the house of a consulting hospital surgeon,

who, seeing him suffering from so much pain and tenderness in his leg, which made it almost impossible to examine the limb carefully, from the additional pain and spasm which was induced by it, and finding nothing wrong about the knee or hip-joint, came to the conclusion that probably there might be a deep abscess near the back part of the tibia, and that the tibia itself might be diseased; and he directed the treatment to be adapted to such a view of the case, and a belladonna plaster to cover the leg. The night following this visit to the surgeon was passed in a wild agony of awful pain, with cramps and twitchings in the right limb. After ten days, there being no alleviation of the severe symptoms, the opinion of another hospital surgeon was sought. He saw the patient in bed, and examined him carefully; but I believe he gave no intelligible or satisfactory opinion as to the cause of the painful symptoms. He directed the patient to be kept quiet on a couch or bed, the knee-joint and leg to be supported by a splint, and the knee to be covered with cotton-wool.

I hope this circumstantial statement will not imply anything like self-laudation. I only mention the facts in detail for the purpose of pointing out the method of proceeding which led to a right interpretation of the symptoms.

No improvement occurring, I was desired to see this suffering patient, and I went to him under the influence and with the forethought of doubtful benefit to be derived from my examination, considering the eminence of the two surgeons who had preceded me, and from whose suggestions no good had been derived. I found a very intelligent lad sitting upon a sofa, with his right leg lying on its outer side, supported by pillows. The pulse quickened with but little febrile excitement; the tongue was not much furred; the thigh slightly flexed, and it could not be straightened without pain; most severe pain in the leg, which was every now and then, at two or three minutes' interval, suddenly and intensely increased so as to make him cry out; the back part of the calf of the leg was very sensitive, both on superficial and deep pressure, the muscles of the part being in a state of sthenic contraction and quivering, but there was no marked increase of temperature at the part, nor any distinct fluctuation. By steady and continued pressure upon the calf of the leg, the pain was not increased, and I thought the spasmodic condition of the muscles seemed to subside.

These local symptoms, with their natural suggestions, excluded anything like local disease in the neighbourhood of the posterior part of the tibia, or within the calf of the leg, where the pain was expressed. The muscles subsided in their spasmodic action, the pain was relieved rather than otherwise by pressure, and there was no increased heat at the part; no pain

in the knee or hip-joint when the examination was confined to either of them, nor was there any heat over or near either of them. On pressing the right trochanter major, he experienced pain somewhere in the hip—not in the hip-joint. No attempt was made to put him upon his legs, because he could not bear any weight upon his right leg, and recent experience had shown that the pain had been greatly aggravated by making such an attempt. I thought it was clear that the real pathological cause of the pain was not at the part wherein the pain was expressed, and that there was no local inflammation in the part; for there was not the local indication, or constant concomitant of it—namely, increase of temperature. The nervous supply to the deep and superficial muscles of the leg, and to the overlying skin, being derived from the great sciatic nerve suggested to my mind the belief that the cause, whatever it might be, would be found anatomically associated with that nerve, to the exclusion of the anterior crural and obturator nerves.

These considerations induced me to examine the structures near to which the great sciatic nerve travels towards its distribution. The patient being gently turned over on to his stomach, I pressed with my thumb upon the junction of the sacrum with the ilium, and near to the last lumbar vertebra, on the right side, and he immediately screamed out that I gave him the pain in his leg. On making a like degree of local pressure on the corresponding part on the opposite side, no pain was induced at the point of pressure or in the leg; by repeating the pressure on the right side the pain in his leg recurred. Thus the real cause seemed to be discovered in the form of disease between the sacrum and ilium, or thereabouts; and the obvious and first remedy was to give rest to the joint, and that could be obtained only by the patient lying, uninterruptedly, flat upon the back, and by the application of a long, straight splint to the leg and pelvis, so as to prevent any disturbance; the recumbent and supine position to be strictly maintained during two months. The splint was applied immediately by Mr. Barnes. He had no medicine—not a drop. The patient was not allowed to turn in his bed, or to sit up for any purpose; and in a fortnight all the painful symptoms had subsided, so that he was quite comfortable in every respect.

I did not see this patient again until the 22nd of January last—two months from my previous visit. I found him happy, free from pain, health and appetite good, complaining only of a little headache from his head being too low. I turned him on to his left side, and examined his right sacro-iliac joint by direct pressure; but it did not produce any pain, either at the part or in the leg. Thus mechanical rest had aided nature to repair the mischief, whatever it might have been. Considering that

he had been more or less lame since April, 1860, it seemed unreasonable to suppose that the diseased structure of the sacro-iliac joint could be repaired in so short a time as two months; hence it was arranged that the same plan of mechanical rest should be persevered in for one or two months longer.

The diagnosis, in this case, was established chiefly through the medium of a recognition of the anatomical course of the great sciatic nerve which supplied the part where the pain and spasm were expressed, and in that respect the case is important and of striking interest. The patient, I am happy to say, is now perfectly well in health, and free from any pain. The intention is that he should lie down till the end of this month.—*Lancet, Oct.* 18, 1862, *p.* 44.

ORGANS OF CIRCULATION.

27.—ILIAC ANEURISM REMEDIED BY OPENING THE SAC, AND TYING THE COMMON ILIAC, THE EXTERNAL ILIAC, AND THE INTERNAL ILIAC ARTERIES.

By James Syme, Esq., F.R.S.E., Professor of Clinical Surgery in the University of Edinburgh.

[The doctrine usually taught is, that the artery is not in a condition suitable for the ligature so far as the aneurismal sac extends. To this Mr. Syme objects on the ground that the size of the tumour does not depend upon the state of the vessel, and therefore, cannot be taken as any measure of the extent to which its coats are impaired, while the formation of a sac, so far from proving injurious to the artery, must rather tend to strengthen and support it, by consolidating the textures in its neighbourhood. The patient, R. L., was a seaman, thirty-one years of age. He received a blow last November, (1861), on his left groin, which caused a painful swelling that was treated as glandular. It was, however, soon found to be an aneurism.]

On the 18th of April he was admitted into the Royal Infirmary of Edinburgh, when the aneurism was found to extend from below Poupart's ligament considerably higher up than the umbilicus, and from two inches beyond the middle line of the abdomen towards the right side, completely across the left iliac region, so as to overlap the crest of the ilium. There was a strong pulsation throughout the whole extent of the tumour, great pain in the course of the crural nerve, and considerable œdema of the thigh.

On the 20th, chloroform having been administered, the cavity was examined by introducing first one finger, then another, and

finally the whole hand, without any trace of the artery being detected, whence it was concluded to be out of its usual situation. A screw clamp provided by Professor Lister, of Glasgow, was then employed to effect compression of the aorta; and this having been ascertained to be complete, a free incision was made through all the textures concerned, so as to lay the sac fully open, and allow six pounds of blood and clots to be scooped out. It then appeared that the arterial orifice was in the roof of the aneurism, from the vessel having been raised in this direction by the blood effused under it; and this orifice being brought distinctly into view by dissection of the sac, was tied on both sides of the vessel. But as blood still issued, though not with the same force as before the ligatures were applied, it was concluded that the internal iliac originated from the portion of artery comprehended between them; and this vessel also having been exposed, was tied by a thread passed round it. The wound was then dressed superficially, and everything went on favourably. On the nineteenth day the ligatures separated, and the cavity gradually contracted.

There were, Mr. S. said, three points to which he wished especially to direct attention:—First. That there was no reason to conclude that the artery in the sac of an aneurism was unsound beyond the point of rupture; and, if sound, it was better to tie near that point. Secondly. That the artery, if unsound at the seat of the aneurism, is just as likely to be unsound at parts at a distance, where, according to the Hunterian method, it is usual to tie it. In the case of axillary aneurism which he had previously brought before the society, the patient got quite well and to his work, but afterwards died of aneurism of the aorta. In this case the whole arterial system was diseased. Thirdly. If the arteries are unsound, it is better to tie near the ruptured part. In ligaturing arteries in stumps after amputation, he had found the arteries so diseased that they grated under the ligature, and yet the case did well. In some cases, as in popliteal aneurism, it was impossible to tie the artery at the ruptured part. He felt confident that these principles were correct; but one case, under Sir Astley Cooper's care, of ligature of the abdominal aorta, made him feel anxious. The patient was a man aged thirty-eight. The aneurism followed a blow. It gradually increased in size, and pressure applied to it caused sloughing, followed by hemorrhage. Sir Astley Cooper endeavoured, by making an opening, to compress the artery, but on introducing his hand felt nothing but a confused mass of clots. He, therefore, enlarged the wound, and ligatured the aorta above the bifucation. In the dissection of this case, it was stated that the track of the artery was not in the aneurism. He (Mr. Syme), with the greatest respect for the opinion of Sir

Astley Cooper, felt inclined to believe that he had been mistaken, rather than that there was an exception to the universal rule.—*Lancet, June* 7, 1862, *p.* 602.

28.—ON THE TREATMENT OF POPLITEAL ANEURISM BY PRESSURE, ON A NOVEL PRINCIPLE.

By Dr. Bland, President of the Australian Medical Association, Sydney.

[The patient had been under treatment by pressure for several weeks, at one of the public institutions of Sydney, but without any good result. The pressure attempted previously had been too rigid, and had produced great suffering.]

In order to obviate the patient's dread of pressure, I was induced, from having observed that the calibre of some of the largest arteries might be completely obstructed, with firm coagula, particularly in those parts of their course where, for any considerable distance, large branches were given off, to devise the following plan of employing pressure in the present case, viz.:—First, to use no degree of pressure beyond what would be found sufficient, not all at once, but gradually to reduce the stream of blood in the vessel to be acted upon, and this so as not to produce pain. Secondly, to apply the pressure on two or more different points in the line of artery, a plan which was carried out in the following manner:—The patient was placed in bed, on a firm mattress, in a half-sitting position, while the thigh was made to form an inclined plane in the opposite direction to that of the body, the leg and foot being placed horizontal, on a soft pillow, in a frame or cradle, raised some ten or twelve inches above the surface of the mattress, the weight of the bed clothes to be prevented from resting on the foot of the patient by a foot-board. Two tourniquets, which were found sufficient, one to the artery in the groin, the principal object of which was to divert the stream of blood as early as possible from the inguinal artery into the internal iliac and its numerous large branches, and one of the tourniquets to the upper border of the popliteal space, care being taken not to make any painful amount of pressure on the nerve which accompanies the artery, while the tourniquets, being applied with a steel or iron ring instead of a strap, were constructed so as to make no pressure except by means of their two respective pads, one placed upon the artery, the other on a spot immediately antagonistic to it, for counter pressure. The pads, also, were slightly elongated in their longitudinal direction, so as, with the aid of the metallic rings just mentioned, to secure to them a steady bearing on the spots to which they were applied.

The direct advantages derived from the above arrangements were numerous and highly important. First, the position of the thigh tended to reduce the force of the blood stream flowing into the aneurismal tumour, while its return by the veins, was, by the self-same circumstance, greatly facilitated. Secondly, the regulated but gradually increasing pressure on the inguinal artery reduced while reducing the stream of blood in that vessel, forced at the same time a larger stream in that internal iliac and its numerous, large, and ultimately anastomosing branches. An analogous remark applies with almost equal force to the regulated pressure on the upper portion of the popliteal artery. Thus every part of the arrangement was made to harmonize. The gradual OBLITERATION of the main arteries concerned was not only necessarily accompanied with the *commensurate* EXPANSION of the extreme capillary ramifications, but that very expansion of the capillaries tended greatly to facilitate the obliteration of the main arteries in question, while, from the gradual manner in which this great change was brought about, the change itself was effected without pain and without danger.

The tourniquets, I beg to repeat, each consisted of a light, but strong iron ring instead of a strap, each ring fitted a hinge on one side and immediately on the opposite the ring readily opened or closed so as to facilitate their application without in any way disturbing the patient. The pads, too, were not broad, but instead, were elongated, so that while the rings afforded a steadiness of position to the instrument in a *transverse* and *vertical* direction, an equal degree of steadiness was imparted to them in the *longitudinal* direction by the two pads attached to each tourniquet. The management of the tourniquets was simple, and attended with no incertitude or trouble. If the pads of either of the tourniquets began at any time to feel a little tight, the pads of the other tourniquet were at once slightly tightened, and then the pads which had begun to feel somewhat uneasy were proportionately and cautiously unscrewed, so that the full amount of the requisite pressure was never, even for a moment, dispensed with; all which was carried out without pain or even inconvenience, to the patient; and in less time than it has taken to describe it—indeed the pads were so readily managed that, latterly, this alternate slight tightening and loosening of the pads was not unfrequently, towards the close of the treatment, left to the discretion of the patient.

The effects of the above management were soon manifest. At the expiration of about ten days from its initiation, the enlargement of one of the small superficial arterial branches of the knee had become sensible, both to the sight and touch, and all pulsation in the aneurismal tumour had ceased. At the expiration of another similar period the limb had been, but with great cau-

tion and gentleness, both straightened and flexed; the tumour had become considerably reduced in size, and, in a few more days, the patient was enabled to be discharged, cured.—*Australian Medical Journal, October* 1861, *p.* 279.

29.—THE TREATMENT OF VARICOSE VEINS BY A NEW AND SIMPLE INSTRUMENT.

By Dr. James Morton, Surgeon to the Glasgow Royal Infirmary.

[The mode of operating for the occlusion of varicose veins at present pursued in London we have in several former volumes set before our readers (see *Retrospect*, vol. xliv., p. 123.) The following is the practice adopted by Dr. Morton at the Glasgow Royal Infirmary. He says:]

Let me premise that it is not necessary to wait till the ulcers are healed, and, indeed, the healing process seems to be accelerated by the operation:—Chloroform has generally not been used, though in some cases, when the patient is timid, its employment might be judicious; and in private, when the patients are willing to inhale it or are anxious for it, we should always administer it. Where it can be dispensed with time is saved, and annoying sickness and vomiting avoided. Some recommend erect posture, veins better seen; but we have followed the plan of putting a strip of bandage, which may be wet if desired, around the limb, above the space where the veins are to be operated on, and this serves the same purpose by causing dilatation of the veins, so that they are easily perceived and their outline defined. The needle is then passed under the distended vein, the upper arm is brought down and fixed or hooked upon the other; and as they are now made, the projection or pad, or substitute for it, presses upon the vein, and they are allowed to remain thus for a week. At first we used a common straight needle, with a piece of bougie or elastic catheter over the vein, and a ligature twisted, figure of 8 fashion, over this and round the ends of the needle. Then the idea of what we may call the safety needle occurred to me, suggested as it was by the safety pin in common use for ladies' shawls, and in the dresses of infants; and this needle was first used with a piece of bougie as a pad, or a small piece of lint rolled together. This was somewhat apt to move from its place, or might be moved by the patient, and then we thought of making a kind of indentation in the upper arm of the needle in which this might rest, and narrowing the fenestra so as to insure steady pressure; and while thinking of this, the needle which I now show you was handed to me by one of my dressers, Mr.

C. J. Russell, affording a fixed pad, a part of the instrument itself, consequently rendering it impossible for the patient to remove it. Startin's needle is on a smilar principle, but more apt to press on the skin; and another is mentioned in the Medical Gazette some months ago.

The obliteration of the canal of the dilated vein has been aimed at in many ways, in what is called "the radical cure." Among these we may mention pressure by means of a firm pad (boxwood or cork) and bandage; subcutaneous section, as recommended by Sir B. Brodie; excision of a portion of the vein, proposed by Mr. Watson of New York; the potassa cum calce, advocated by Mr. Cartwright and Mr. Mayo, applied over the vein, so as to cause slight inflammation in it and produce coagulation of the blood and occlusion of its canal; Mr. Lee's plan of subcutaneous section between two needles passed behind the vein with the twisted ligature in figure of 8 fashion over them; Velpeau's plan with the twisted suture alone; Davat's modification of the same, by passing needles through the veins at right angles to the transverse needles; the injection of the solution of the perchloride of iron; the employment of galvanism, or rather galvano-puncture; and lastly, the slightly-altered methods already mentioned—that of employing a substance under the ligature to prevent irritation of the skin, such as glass or pieces of bougie—and the other, the use of what has been called the "safety needle," from its resemblance to what is familiarly known as the "safety pin."

Now, whatever may have been the experience of surgeons in regard to operations upon veins twenty or thirty years ago, there cannot be a doubt that all experience at the present day goes to establish the fact that they are almost uniformly harmless, and, at all events, that dangerous consequences are extremely rare. On this point, however, I cannot do better than quote the following remarks of Ferguson of London, who, after alluding to the fact that all interference with the saphena vein or its branches was believed to be attended with the utmost danger, thus writes:—"Of late years, however, there has, in my opinion, been ample ground for doubting the correctness of the prevalent doctrines of modern surgery regarding some injuries of the veins; and though I do not wish to be understood as advocating any useless interference with these vessels, or any carelessness regarding them, in operations on arteries for aneurisms or during amputations, I do not hesitate to state my opinion, that the dangers of some of these accidental or intended injuries have been much exaggerated; and, in illustration, the instances of interference with varicose veins, with which most modern surgeons are now very familiar, may be referred to. The examples afforded by the practice of Velpeau, Davat, Fricke, and many

of our own practitioners, clearly evince the rarity of unfortunate results, or of dangerous consequences from local inflammation induced by surgical interference. The discussion of such matters does not come within the scope of my present object; but I trust that I have appeared sufficiently explicit in giving my opinion, that far less danger is to be apprehended from injury to varicose veins than the doctrines of twenty years back inculcated." These remarks are dated in 1857, and it is my impression that the general experience of surgeons since that period will corroborate the preceding statements.—*Glasgow Medical Journal, July* 1862, *p.* 169.

ALIMENTARY CANAL.

30.—ON THE TREATMENT OF STRANGULATED HERNIA BY "INVERSION" AND BY OPERATIVE MEASURES.

By Furneaux Jordan, Esq., Assistant Surgeon to the Queen's Hospital, Birmingham.

[Many cases have been reported lately in which strangulated hernia has been successfully treated by inversion of the body. No cases, however, have been reported in which this treatment has failed; hence an erroneous inference might be drawn that inversion is a commonly efficient method of treating a frequent and serious malady. The author does not wish it to be supposed that he esteems lightly this remedy, and, on the contrary, thinks that in proper cases operative measures should be preceded by a carefully conducted and complete inversion of the body. The position is effected with ease and delicacy with the aid of a few assistants, a strong chair, and a blanket.]

The following observations on inversion are based on a careful study of my own cases and the successful cases which have been published. I must first premise that there cannot be a doubt that the cases where inversion has failed have not been published:—

1. Inversion may be performed in appropriate cases with efficiency and delicacy, and without detriment to the patient or to subsequent remedial measures.

2. It should not substitute but be added to the other methods of treatment which precede operative interference.

3. It will, like the taxis under the complete influence of chloroform, fail in a very large number of cases of strangulated hernia.

4. It should be resorted to early or not at all.

5. Inversion ought certainly to be avoided if there be actual or suspected inflammation in the hernial sac or in the peritoneum generally. It should still more urgently be avoided if there is reason to fear a gangrenous state of the bowel. Inversion in such cases would probably tear the intestines in the abdominal cavity from the strangulated knuckle in the sac. In sphacelus of the constricted bowel (I may remark parenthetically) I have freely opened the diseased canal—a point on which all surgeons are agreed; and I have, at the same time, divided the constriction—a point on which, surprisingly enough, all surgeons are not agreed.

6. Inversion exercised in proper cases and at the proper time facilitates one step in the operation—the decisive and complete return of the bowel after division of the constricting medium.

7. It is not clear that chloroform may be safely administered prior to inversion of the body. The danger may be two-fold:—1. Pressure of the tongue on the epiglottis and upper aperture of the larynx; and, 2. Pressure of the abdominal viscera on the diaphragm, and, therefore, on the lungs and heart. When the body is inverted during chloroformisation in cases of foreign bodies in the larynx, most surgeons, I believe, take the precaution of first making an artificial opening in the wind-pipe.—*Med. Times and Gazette, June* 14, 1862, *p.* 610.

31.—ON A CASE OF PROLAPSUS OF THE RECTUM OPERATED ON BY THE CLAMP AND NITRIC ACID.

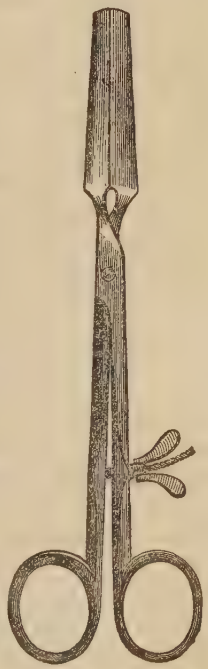
Under the care of Henry Smith, Esq., King's College Hospital.

T. M., aged forty, admitted into King's College Hospital, August 22nd. He had suffered for many years from hemorrhage from the rectum and prolapsus. He had lost much blood, and presented a weak and pallid aspect. On examination, there was seen a considerable protrusion of the mucous membrane of the rectum on the right side, the part being very vascular. There was also on the same side a large thickened fringe of integument hanging down.

On the next day Mr. Smith operated on the patient in the following manner:—The protruded portion of membrane was first seized by a vulsellum and pulled as far down as possible. The base of the tumour was next included in the blades of the clamp here depicted, and, by means of the screw, they were brought so close together that every particle of mucous membrane was tightly compressed. The free portion of the membrane which was above the blades, and which consisted of almost the entire prolapsus, was then removed by sharp scis-

sors. The cut surface was wiped dry, and the strongest nitric acid then carefully applied. This being effected, the blades of the clamp were slowly disengaged from the base of the tumour by means of the screw, and there being no hemorrhage, the part was well oiled and returned. The large pendulous flap of thickened skin was lastly cut away by scissors, and the operation was completed.

The patient had no subsequent bleeding or untoward symptom. The bowels were acted on by castor oil on the 26th, and the patient left the hospital on the 27th without any protrusion.



Mr. Henry Smith, in some clinical remarks, said he was glad of this opportunity of introducing to their notice a mode of treatment which he was in the habit of employing in certain instances of prolapsus and hemorrhoidal tumours, and of showing to them a new kind of clamp which he had been recently using, and which was a great improvement upon those previously used. Some time ago, not being satisfied with the clamps ordinarily in use, he had requested Mr. Matthews to construct one, the blades of which fitted close into one another, by means of a convexity on one side, and a concavity on the other. By this means the mucous membrane could be firmly held, and the bleeding be arrested. An improvement upon this was next effected, by strengthening the handles, and adapting a catch so that the handles, and consequently the blades, might be firmly locked together; and this modification is found extremely useful in dealing with cases where there are several tumours, or where the surgeon may be short of assistants. But there was one disadvantage which was perceptible in connexion with this mechanism when the blades were separated after the steps of the operation had been followed out; this disjunction was of course effected suddenly, and there was a great chance of the mucous membrane slipping away from the notice of the operator, and hemorrhage might possibly be going on. To obviate this he requested Mr. Matthews to adapt a strong but light screw to the handles of the instrument, so that when the operation had

been completed, the pressure might be gradually taken off the divided mucous membrane; and if the bleeding had not been sufficiently controlled, the points from which the blood issued could be readily recognised, and at the same time be retained within the grasp of the blades by a turn of the screw, so as to permit of the further application of nitric acid, or of the actual cautery if necessary. He had adopted the operation which they had witnessed on numerous occasions of late, and with great success. If care were taken to prevent hemorrhage, he believed it to be perfectly free from danger; and it was of great importance to possess some mode of treating hemorrhoids and prolapsus which was not attended with danger to life. Admirable as was the method of treating these diseases by the ligature, it was not free from danger to life; and he thought, if the surgeon possessed some means equally effectual, and yet free from dangerous consequences, he was bound to employ it, and therefore he was glad to be able to recommend in the strongest manner the improved clamp which they had just had the opportunity of seeing employed.—*Lancet, Oct.* 4, 1862, *p.* 371.

32.—OPERATIONS FOR FISTULA IN ANO WITH GANT'S CONCEALED FISTULA KNIFE.

We have had occasion to notice the convenience and advantage derived from this instrument in operating for fistula. In long, narrow, and tortuous fistulæ, the concealed knife—having no point or cutting edge until occasion requires—is most serviceable, and safer to operate with than the ordinary unprotected knife. In cases of blind internal fistula, it is well adapted for the more effectual performance of the operation; and in all cases this operation can be accomplished with more facility, owing to the fact that no director or probe is necessary.

We have lately had the opportunity of witnessing these advantages in two operations by Mr. Gant at the Royal Free Hospital. In one, a long and narrow fistula was in close proximity to the vagina. The division of the sphincter and bowel was accomplished far more readily than it could have been with the old unprotected knife and director; while for the inner opening of the fistula, being deeper than usual, the advantage of using a knife which is either blunt or sharp pointed, at pleasure, was very apparent. In the other case of a similar kind, the same advantages were conspicuous. This simple instrument is manufactured by Messrs. Weiss. — *Lancet, Aug.* 16, 1862, *p.* 172.

ORGANS OF URINE AND GENERATION.

33.—ON THE TREATMENT OF STRICTURE.

By Thomas Bryant, Esq., Assistant Surgeon to Guy's Hospital.

[Can the urethra which has become much contracted from inflammatory action, ever be completely cured?—that is, restored completely to its normal healthy condition, no tendency to contraction remaining. Such a question can hardly be answered positively in the negative, and indeed cases of *simple* organic stricture do constantly occur, in which treatment has restored the normal patency of the canal, and in which no subsequent return has ever been observed.]

Treatment by Dilatation.—The simplicity of the treatment of a case of stricture by dilatation—that is, by the passage of some bougie, sound, or catheter—commends itself at once to the mind of a surgeon. In the hands of a man but moderately skilful, the introduction of an instrument through a slight stricture is not an operation of difficulty, and the uniform success which attends the practice is sufficient to make this plan of treatment tolerably general. It may, therefore, without doubt, be positively written that cases of simple stricture, which can be readily dilated by means of instruments, should be so treated, and that such mechanical means are amply sufficient for their cure.

In a slight case of stricture, that is, one in which the stream of urine is but partially narrowed, forked, or twisted—in which a No. 3 or 4 instrument can be passed without much difficulty, and in which there are no other local symptoms than that of obstruction, and no constitutional symptoms, the daily introduction of an instrument just large enough to pass through the contracted canal, will, in the majority of cases, be quite sufficient to ensure a cure. It will not be necessary to confine such a patient to his house, or to forbid exercise, although, where these extra advantages can be secured, the cure will be more rapid. If the secretions are out of order, alteratives must be given, and if the urine is at all high coloured and irritating, some saline or alkaline, will be found of benefit. The tartrate and nitrate of potash are unquestionably the best, fifteen or twenty grains of the former, and five of the latter in some bitter infusion acting most beneficially.

In cases of greater severity, however, this treatment will seldom be of equal service. The same principles of treatment, doubtless, must be carried out, but the details will require to be modified according to the exigencies of the symptoms.

If the canal is so contracted as to admit of but the smallest instrument, it is tolerably certain that the bladder will be found to be more or less irritable, and the urine altered in its charac-

ter; these symptoms having been produced by the unceasing efforts of the bladder to overcome the obstruction caused by the gradually contracting urethra.

Rest in the horizontal position in these severe examples is almost a necessity, to enable the surgeon to carry out his treatment of dilatation with success; and although in occasional cases a fortunate result may be accidentally secured, without such rest, the progress of the case will be but slow and the treatment unsatisfactory. When rest can therefore be maintained, it should be enforced, and if the patient is either unable or unwilling to carry out this advice, the surgeon should, for his own sake and to prevent disappointment, warn him of the uncertainty with which the treatment of his case will be undertaken and the dangers to which he will be exposed; for by labour and exercise he will not only retard his recovery, but he will be exposed to the risk of any one of the many complications to which a man with stricture is always liable.

Assuming, therefore, that the subject of a narrow organic stricture will agree to maintain rest, that is, the horizontal posture, for it is hardly necessary to keep in bed, what is the treatment to be pursued? If the bowels are costive and secretions out of order, let them be corrected before any local treatment be commenced; a day or two's rest before the attempt to pass an instrument is made is often most useful, and success will often follow such a practice when failure had resulted from an earlier effort. If the bladder is irritable, and urine irritating or high coloured, administer an alkali, the combination I have already quoted being the best, and the surgeon may then proceed with some confidence to the special object of his treatment.

It will be taken for granted in the case which is being sketched, that the surgeon has already made himself acquainted with the nature and size of the stricture with which he is about to deal.

In examining a case for the first time, the surgeon should select a large metal instrument, No. 6 or 7 being a very useful size; if this fails to pass the stricture he may select one a size smaller, and so on, till he finds one that will enter if not pass through the stricture.

The instrument should be well warmed, being made the temperature of the body, so that it will not therefore cause spasm or contraction of the urethra; it should be well lubricated with oil, and passed very slowly, so as not to frighten the patient.

The surgeon should, when passing the instrument, talk to his patient, in order that his attention should be withdrawn from the operation, and any obstruction from causes of that description thereby removed.

Having thus learned the character of the stricture with which he is about to deal, an instrument should be selected which there is some fair prospect of the surgeon successfully guiding through the stricture—a metal one is, perhaps, the best, as it can be used with greater confidence, and at an early stage of the treatment it enables the operator to obtain a more general knowledge of the condition of the passage and the nature of the stricture.

If the instrument can be manipulated without force through the constriction, a great point will have been obtained, and the patient may be then assured, with considerable confidence, that a successful result may be looked for within a short date.

Force is a relative term in its nature, and it is difficult to define its exact meaning; but few surgeons who have passed an instrument through the urethra can fail to appreciate its correct interpretation. Practically it means that the end of the instrument is not to be pushed through the tissues, and that, therefore, a false passage is not to be made, or a laceration of the urethra to be risked.

Quiet manipulation and steady pressure will succeed in guiding any instrument through a stricture if it is directed in the right channel; and when this fails, force will not succeed. Force is synonymous with laceration, and is therefore to be condemned; it is never necessary, and it is therefore to be avoided.

Having, then, succeeded by manipulative efforts to guide a metallic instrument through a stricture, what is to be done? is the instrument to be removed, or is it to be left in? and if so, for how long?

If the instrument is a catheter, which is to be preferred, which the surgeon has evidently only just succeeded in passing through the stricture, as evidenced by the firm and peculiar grasp with which it will be held, the safest practice to be followed is to leave it in. The probabilities of failure in a second attempt at its introduction after its removal, or of passing an elastic catheter, are very great; and as success has followed this first attempt, it is as well that the operator should be satisfied; let him, therefore, leave well alone, and fasten the catheter in the bladder for a time, fixing it to the penis.

If the presence of the instrument can be borne for one, two, or three days, so much the better; the local indications for its removal being its looseness; this condition indicating the fact that the stricture has been evidently dilated, if not partially absorbed, and it is proved by the absence of grasp which was so evident on its first introduction. If this effect is produced after the presence of the instrument for only a few hours, and no irritability of bladder exists, it is as well to leave the catheter alone,

and not remove it for at least a day; it may then be taken out, and an elastic catheter of a size larger, guided by means of a firm stilette, introduced in its place; by the repetition of these means a simple organic stricture may be readily cured without pain and without danger.

If an elastic catheter can be passed from the first, an advantage is obtained; as the bladder is far more tolerant of the presence of such an instrument than of a metal one; and it is also far more comfortable to the patient.

If there is much irritability of bladder induced by the presence of the catheter, a few hours' interval may be allowed between its removal and the reintroduction of a larger one. Alkalies, however, an opiate and rest will, as a rule, rapidly allay the violence of these symptoms, and permit the local treatment to be pursued.

If the bladder should be naturally irritable and unable to tolerate the presence of an instrument, a compromise in the treatment must then be made; the catheter may then be passed through the stricture, and left there until the patient requires to micturate; it must be then withdrawn, and reintroduced at the surgeon's next visit, and left in as before; perhaps a larger instrument being selected; this plan of treatment is good, but is more tedious than the one previously described, which is unquestionably the best and most satisfactory treatment.

Some surgeons are in the habit of using catheters perforated at their extremity; such an instrument it would be as well to pass through the stricture, and that is all, leaving the catheter *in sitû*, and through this patent extremity the patient will probably, when called upon, be well able to relieve his bladder.

The plan of treatment by gradual dilatation which I have just sketched, is the one which is generally employed at Guy's Hospital, with such slight modifications as the peculiarities of each case, and their several complications, suggested to the surgeon; it has been practised with success in the 565 cases of simple, and the 37 cases of traumatic organic stricture, which have been tabulated.

It is a method of treatment which is both satisfactory and successful. It is attended with little or no danger, and is one which, with moderate skill, can be efficiently carried out; and as its results are all that can be desired, it is one which is cordially advised.

It is not to be doubted that cases do occur in which this treatment will be found to fail; other plans must then be had recourse to; but the simple plan should be the method first employed in the majority of cases, and when it fails it is time enough to be prepared to carry out other views.

The treatment of simple or traumatic organic stricture by

gradual dilatation, should be the rule of practice, and other plans the exception; the success which has followed the practice at Guy's Hospital warrants this conclusion, and enables me with confidence to express it in these pages. In saying this, it is by no means intended to convey the impression that other plans carried out by able surgeons who are in the habit of their daily practice, are to be looked upon as valueless, and should be rejected; for doubtless they are of use in many cases; but my object has been to show what practice has been proved to be of value in large numbers of cases of disease in a large hospital, and with such evidence it would be impossible to reject the practice which has been laid down and to pass to others which are comparatively untried, and which are more complicated.

As surgery improves, the tendency of the last few years has been to show that its true improvement has always been towards simplicity; complexity of treatment is generally bad, as being meddlesome and unnecessary.

Forcible dilatation, as practised by Mr. Holt; the destruction of the stricture by means of caustics, and other plans, commend themselves to our consideration by the eminence of the men who are their advocates; and by the success which has been said to follow their respective practices; and doubtless they are of great use; and as time passes and experience accumulates, the *class of cases* in which they may be employed will be more accurately defined. But as long as the simple treatment which has been described continues successful, that is, as long as the stricture can be readily dilated without pain and without danger, and, at the same time, with almost uniform success, it would require more faith than I now possess in the value of the so-called recent improvements, to enable me to believe that they will supersede the treatment which has been described, and which has been clearly proved, beyond a doubt, to be of value. Having no personal experience in the value of these plans of treatment, I speak of them with caution, yet with respect, and shall be only too ready to carry them into practice when accumulated evidence can be brought forward to prove that they are to be preferred to the older, simpler, and the present satisfactory, approved plan.

Forcible dilatation, as carried out by Mr. Holt, appears certainly to be a simple, and, I can well believe, a rapid and efficient means of cure. The principle of its action is sound and scientific, and if the results of more extensive experience bear out the conclusions which its author has been led to entertain, it will doubtless become a valuable and more general method. But we are not yet told whether it is to be employed in all cases, or in what class of cases it is recommended.

[The treatment of stricture by internal division has received but little support at Guy's Hospital, and that by means of caustics has met with even less support than that by internal division. Mr. Bryant then proceeds to consider the treatment of stricture by external incision, and in doing so, quotes from a paper written by him some years ago.]

Treatment by External Division.—"In cases of organic stricture, where the passage of a catheter is possible, and not difficult, where it does not produce either any injurious or painful constitutional or local disturbance, and where, after dilatation of the stricture, an occasional passage only of the instrument is required to maintain an open channel, no other surgical means can be called for."

But, unfortunately, such surgical treatment is not sufficient for the cure of all cases of permeable stricture, and a second statement was appended, which, it is now believed, is as generally entertained as the preceding.

"That cases of stricture do occur occasionally, which are so exquisitely sensitive that the passage of a catheter, however skilfully performed, is followed by such severe constitutional and local disturbance, as to produce more harm than good, and in which it is clear that some other method of cure must be employed; and others which are relieved by means of the catheter, and are even fully dilated, but which have a tendency to contract again immediately upon the omission of the treatment."

In the former class of cases, described as "irritable stricture," the treatment by dilatation aggravates instead of relieving the symptoms; in the latter class, described as "contractile stricture," it must be continued for life, to preserve an open passage.

Under such circumstances it is tolerably evident that some other plan of treatment must be adopted, and the operation of "external division" appears the best.

To Professor Syme the profession is unquestionably much indebted for having so ably recalled its attention to this plan of treatment; the external division of the stricture from the perineum being, without doubt, the most effectual means of cure for the two troublesome and painful classes of cases to which we have alluded.

The operation is by no means one of difficulty. A grooved staff, as large as can be passed through the stricture, is first introduced, the patient having been placed upon his back, as if about to be cut for stone. The surgeon should then, with perfect precision, introduce his knife into the centre of the perineum, and at one stroke cut down upon the groove situated at the lower border of the staff; using this as his guide, the peri-

neal portion of the urethra in which the stricture is situated can then be readily and freely divided. There are but two important points to be observed in this the second step of the operation; the first is to be sure that the knife touches the groove of the staff, and secondly, that the whole of the diseased or strictured portion of the urethra is freely divided. Having succeeded in this, the essential part of the operation, the sound may be removed, having previously introduced a grooved probe or director into the bladder through the perineal wound. Upon this an elastic catheter of a large size can be readily introduced through the penis into the bladder, and fixed in.

The patient should then be sent to bed, and a mild opiate given, such as ten grains of Dover's powder, if much general or local vesical irritability should be present.

The catheter may be left in for several days, if it should fail to cause pain. If the bladder, however, resents its presence it may be removed, and an occasional introduction of an instrument employed as a substitute. It is, however, a point of some importance that an instrument be left in the bladder for the first twenty-four hours.

With this treatment most cases do well. The stricture, or rather the old inflammatory product which, by its contraction, has caused the stricture, readily softens down, leaving the membrane comparatively sound. Repair of the divided urethra rapidly takes place, and recovery ensues.

This plan of treatment is one which is certainly to be commended. The operation is comparatively a simple one, and can be readily performed, requiring only a steady hand and a correct appreciation of the objects to be attained.

It must be remembered, however, that it is only to be carried out when simpler means have failed. In either the very irritable stricture which resents the treatment by dilatation, or the very contractile stricture, which refuses to be materially dilated by the introduction of the catheter; in these two classes of cases of uncomplicated permeable organic stricture is it to be alone employed, and in them it is most successful.

I have the notes before me of seven such examples, in all of which recovery was secured.

Impermeable Stricture.—The examination of pathological specimens unquestionably demonstrates the fact that the urethra may become so contracted as not only to be quite impermeable to the passage of an instrument, but that in rare cases it may cease to exist as a canal at all, and may then be described as being obliterated; doubtless this condition is more frequently produced as a result of injury than as a consequence of a local inflammation, but that it is to be found as an effect of both causes, daily experience clearly proves.

Other instances of stricture also occur in practice which, to the surgeon who treats the case, are of a like character: all attempts to pass a catheter into the bladder completely fail, and, as a consequence, they are practically to be regarded as being impermeable. This impermeability may be the result of many conditions; great irritability of the passage may be a cause, combined or not with a narrow organic stricture; or it may result from a genuine contraction or obliteration of the urethra. The result, however, is the same; for all purposes of treatment the passage is impassable, and the question to be decided is, what treatment should be pursued.

If the case is uncomplicated, and has not come before our notice associated with retention of urine, extravasation, or perineal fistula, one or the other of which complications must be present if the urethra is really closed, and, therefore, impermeable, there is some reason to believe that by careful treatment an opening may be found, and the case may then be subsequently treated as one of permeable stricture.

Rest in the horizontal position, warm baths, and opium, are of great value in the treatment of these cases; and mercurial alteratives, with the application of leeches to the perineum, are equally useful when any tenderness or inflammatory action can be detected in the course of the urethra. By such treatment the impermeability as a symptom will often disappear, and the treatment of the stricture by dilatation be rendered practicable.

In other examples, however, no such result can be obtained. The stricture is evidently too narrow to allow of the passage of a sound, and some other plan of treatment must be adopted. In those cases the operation of "perineal section" appears to be the best, and, as a consequence, it should be performed. It should not be had recourse to, however, until all other local and constitutional treatment has been tried and found to fail, and under these circumstances the cases requiring it will be very few. Nevertheless, they do occur, and I will quote an example from my former paper in the 'Guy's Reports,' in which the practice was proved of benefit.

Robert M., æt. 50, who had suffered from stricture for six years, was admitted under the care of Mr. Cock, with a urethra which would not admit the passage of the smallestinstrument, and the attempt produced severe local and constitutional disturbance. Chloroform was given, but the urethra was still impermeable, consequently the "perineal section" was performed, and a catheter introduced. This was left in for two days; the man progressed favourably, and left, after four months' residence in the hospital, cured.

This operation of opening the urethra in the perineum without the assistance of a grooved staff or director, is by no means

readily performed; it requires much consideration and great care. The readiest plan is one which I believe, was originally planned and executed by Mr. Cock, and appears both from principle and practice to be the best; it is as follows:—Having placed the patient in a position for lithotomy, pass the finger of the left hand into the rectum, and apply its point to the anterior margin of the prostate and membranous portion of the urethra —a part which it is not difficult to detect even in the most diseased urethras. A straight knife, with the edge turned upwards, should then be passed through the centre of the perineum, directly backwards to the apex of the urethral triangle or anterior margin of the prostate: this point being readily detected by the finger already resting in the rectum; an incision of the whole thickness of the parts should then be made upwards, the canal being freely opened and the stricture divided. By this means the urethra cannot fail to be freely opened, and it only requires care on the part of the surgeon to divide the whole stricture throughout its full extent. With a grooved probe the vesical orifice of the urethra may then be found, and a catheter, having been passed down the penis through the divided stricture, should then be introduced into the bladder, and left in.

This operation is far superior to any other which has been suggested for the division of a stricture, or for opening the urethra when a grooved staff cannot be introduced. It has been described as the operation of "perineal section," the term "external division," or Syme's operation, being confined only to the simpler cases in which a grooved staff can be passed.—*Guy's Hospital Reports*, Vol. VIII., 1862, p. 158.

34.—ON THE IMMEDIATE TREATMENT OF STRICTURE OF THE URETHRA.

By Barnard Holt, Esq., Senior Surgeon to the Westminster Hospital.

[Formerly Mr. Holt operated by passing a series of tubes of consecutive sizes. He has now for many years abandoned that plan, and invariably proceeds to pass at once the largest sized tube which the meatus will admit, so as at once to restore the urethra to its normal calibre. With the commonest attention, the size so attained can be readily preserved. The following abbreviated cases serve to illustrate the practice.]

Case 1.—On November 15th, 1861, Dr. Savage requested me to see Mr. C., who had for some years suffered from frequency of micturition, difficulty in expelling his urine, an uneasy sensation in the perineum, and incapability of emptying his bladder,

the irritability of which was so great that he was compelled to pass urine the moment he experienced a desire to do so. He had been previously treated for stricture, but without material benefit. Upon examination, it was found that a No. 3 could be passed into the bladder, but that it was firmly held at the membranous portion of the urethra; and, to avoid the tediousness attending the ordinary process by dilatation, I recommended him to at once have the urethra enlarged to its natural diameter. On the 1st of December, I passed the dilator, and enlarged the urethra so that it would admit a No. 12 catheter with ease. The pain was momentary, and of the most trifling character. There was hardly any bleeding, and the patient was surprised at the slight amount of suffering. On the following day he expressed himself as quite comfortable, and that he had made water with greater ease and less frequency than before.

Dec. 3rd. The No. 12 catheter was passed with the greatest ease, and he was in every respect much improved.

Dec. 5th. The catheter was again had recourse to; and so first on alternate days, and afterwards at longer intervals, the catheter was occasionally passed.

Jan. 1st. He now passed his urine in the fullest stream, was entirely free from pain, and could retain his urine for seven hours without the slightest discomfort.

Case 2.—Major-General Sir —— consulted me Dec. 10th, 1861, in consequence of a severe stricture of the urethra, from which he had been suffering for the last fifteen years. He had been much abroad, but was compelled to return to England in consequence of his increasing difficulty in expelling the contents of his bladder. He stated that, for three years prior to my seeing him, he could only retain his urine an hour or an hour and a-half; that its expulsion required great muscular exertion, and thus gave rise to hemorrhage and prolapse of the rectum; that his urine was more frequently passed by drops than in a stream; and that he had no power of preventing its dribbling away and constantly wetting his clothes. Daily attempts had been made, for more than a month prior to my seeing him, to pass a catheter, but without success.

Upon examination, I found a tight stricture at the anterior part of the spongy portion of the urethra, through which a No. 2 was passed, but it was arrested at the bulb; and, as there was some hemorrhage, and the patient became faint, no further attempt was then made.

On the 12th, the same catheter was passed through the two strictures, but would not penetrate a third situated at the membranous part. He again became faint, and prevented any further trial.

On the 16th, a further trial was made, and the bladder nearly

reached; but the bleeding and faintness prevented my persevering.

On the 18th, the catheter, after some considerable difficulty, passed into the bladder; and about a pint of offensive urine was removed, although he had made water an hour before its introduction. The catheter was retained for half an hour, and required considerable force to withdraw it.

On the 21st, the same instrument was again passed; and, upon its removal, a larger size was attempted; but the strictures were as yet too contracted to admit it.

On the 25th, a No. 1 was passed into the bladder with comparative ease. He had much improved in health since the urine could be expelled in a small stream.

On Jan. 4th, the size had been increased to No. 2; and, on Jan. 6th, the dilator was passed, and the urethra was immediately enlarged, so that it would admit a No. 11. The pain was much less than he had experienced in the previous attempts to pass a catheter. Only a few drops of blood escaped; and after the operation he returned to the drawing-room.

On the following day, he informed me that he had not experienced the slightest difficulty in passing his urine; that he had held it a much longer time; that only a few drops of blood escaped; and that he was in every respect perfectly comfortable.

On Jan. 8th, he came to my house, when No. 11 was passed into the bladder.

On Jan. 20th, he passed his own No. 11 into the bladder. His frequency of micturition had entirely subsided; he had no further involuntary escape; and the urine was passed in a good stream. He continued his attendance occasionally, always passing his own instrument, until February 20th, when he again went abroad, having perfect control of the disease.

Case 3.—The Hon. Col. —— was invalided from India, in consequence of what was believed to be disease of the kidneys. He consulted me on May 10th; when, from an inquiry into his history and on examination of his urine, I was assured he was free from renal disease, but had long been suffering from stricture. I persuaded him to let the urethra be examined, and found a stricture at the membranous part of the urethra, which would only admit a No. 1 catheter. The examination gave him considerable pain, and was accompanied by more hemorrhage than is usual even in very irritable strictures.

On the 14th, the same instrument was employed, but without success. The stricture bled freely; and he was requested to remain quiet for a few days, and regulate the bowels with medicine I prescribed.

After the expiration of a week, the parts were more quiet,

and the No. 1 was again passed. The urethra was, however, still irritable, and the passage of the catheter gave great pain.

By continuing his attendance, I was enabled, at the expiration of three weeks, to pass a No. 3, when he consented to have the stricture split. As he was exceedingly nervous, chloroform was administered, the dilator passed, and a No. 12 tube pushed between the blades; the No. 12 catheter being afterwards substituted to remove the urine.

On the following day his urine was passed with great freedom; and on the second from the operation he was sufficiently well to attend Epsom races. There has never been the slightest difficulty in passing the No. 12 catheter, and he expresses himself as passing urine as well as ever he did.

Case 4.—Captain P., a patient of Mr. Miller, of Duke-street, St. James's, consulted me for stricture of many years duration. He was enabled to pass a No. 6 catheter; but, although the urethra was so far patent, he had, for the previous six weeks, daily retention of urine, which required the passage of the catheter once and twice a-day.

Upon examination, a long elastic stricture was detected situated about the membranous portion of the urethra, through which a No. 6 could be passed, but it was held exceedingly tightly, and the urethra refused to admit a larger size. The retention evidently depended on the patient's inability to empty his bladder, and the consequent gradual accumulation of the urine.

On Jan. 29th, the dilator was introduced, and the No. 12 tube passed, the No. 12 catheter being afterwards substituted for the removal of the urine. The operation gave hardly any pain; and, although previously apprehensive of suffering, he was surprised at the little pain he experienced. In the evening, he passed his urine freely.

On the following day, the urine was also passed freely.

On the third day, the No. 12 catheter was passed without the least difficulty.

On the fourth day, he had retention, which was immediately relieved by the catheter.

From this time, he had only one attack of retention, which evidently depended upon the circumstance of his putting off the time of passing urine when he had the desire to do so. He is now perfectly well in health, and is not subjected to any inconvenience.

The only case in which I have failed to enlarge the urethra was in the case of Col. H., who had been under the care of the late Mr. Abernethy, Mr. Guthrie, and others. His stricture had been divided by internal incision, burned with different caustics, and dilated by retaining a catheter in the bladder. It

was situated at the spongy part of the urethra, about three inches from the meatus, was tough, unyielding, and gradually contracting, so that at the time of my being consulted it would only admit a No. 3. I passed the dilator and the No. 12 tube; but with all the force I could exert, I found it impossible to split the stricture; it yielded, but would not split. From this operation he derived no benefit, and for a time the urethra was made more irritable and painful. This is the only case, out of now more than 200, in which I have not succeeded in splitting the stricture.—*British Medical Journal, Sep.* 6, 1862, *p.* 244.

35.—ON TREATMENT OF STRICTURES OF THE URETHRA BY GALVANISM.

By Dr. Julius Althaus.

Messrs Willebrandt, Wertheimer, and Jacksch have recommended and used galvanism for the cure of *strictures of the urethra*. An insulated catheter, with a free metallic point, is introduced into the urethra, so that it touches the stricture; and it is then connected with the negative pole of the battery. For establishing the circuit, a conductor connected with the positive pole is placed in the hand of the patient. The catheter is left in the urethra for from ten to twenty minutes, after which it easily glides into the bladder. From eight to ten such operations are said to be sufficient for the cure of severe strictures; but further experience is required before a decided opinion on the value of galvanisation in cases of this kind can be given.—*Medical Times and Gazette, Sept.* 13, 1862, *p.* 272.

36.—ON THE DISINTEGRATION AND SOLUTION OF URINARY CALCULI INDUCED BY ELECTRICITY.

By Dr. Julius Althaus, London.

Urinary calculi of the most different chemical composition may be dissolved or disintegrated by means of electricity. Mr. Robinson has recommended the mechanical action of an electric discharge from the Leyden jar for destroying the texture of the calculus. Such a proceeding, however ingenious, would yet not seem devoid of danger, since small fragments of the stone might, by the force of the shock, be lodged in the tissue of the bladder. Prévost and Dumas have employed the mechanical action of torrents of hydrogen and oxygen, developed by the decomposition of water by means of the continuous current, for rendering calculi friable. M. Bonnet and Dr. Bence Jones have proved that we may, by the electro-chemical decomposi-

tion of a solution of nitrate of potash, convey acids and alkalies to the stone, without diffusing these powerful solvents in the urine contained in the bladder, which latter would therefore not be injured by such an operation. We know that most urinary calculi may be dissolved either by nitric acid or by potash. If, therefore, a calculus is immersed in a solution of nitrate of potash, and a continuous galvanic current is caused to act upon this solution, nitric acid will be attracted to the positive pole, and caustic potash to the negative pole. Thus, one side of the calculus will be subjected to the action of the acid, and the other to that of the alkali; so that, if the stone be composed of phosphates, it will be dissolved on the acid side; and if composed of uric acid or urate of ammonia, it will be dissolved on the alkaline side. No doubt this proceeding might be highly advantageous, especially for the removal of large calculi, for which lithotrity is not applicable; but it has hitherto been found impossible to construct an instrument by means of which the current could be safely conveyed to the calculus, and which at the same time prevented the liquid in the bladder from assuming a high temperature, and allowed of the escape of the gases which are formed by the decomposition of water. Dr. Melicher, of Vienna, affirms having successfully operated by galvanisation upon two patients suffering from stone; but as he has not given a full description of his cases, nor of the instruments employed by him, his statement is devoid of value.—*Medical Times and Gazette, Sept.* 13, 1862, *p.* 272.

37.—CASE OF SUCCESSFUL LITHOTRITY IN A MAN EIGHTY-ONE YEARS OF AGE.

Under the care of Henry Smith, Esq., King's College Hospital.

We are indebted to Mr. Teale for the notes of the following case.

John V., aged eighty-one, was admitted Sept. 16th, 1861, with stone in the bladder. Although this patient was so old, he looked much younger than he really was, and had had very good health until about three months previously, when he caught cold, and began to suffer from cough and shortness of breath. Much about the same time he experienced uneasiness in his bladder, and about two months ago he was suddenly seized with retention of urine, and applied to Mr. Smith at the Westminster General Dispensary, who on passing a catheter struck a stone. From this period the symptoms increased, and he suffered a great deal when he moved about, but was pretty comfortable when lying in bed.

On admission into the hospital he was carefully examined,

and a large, rough stone was detected. The urethra was very sensitive, but the urine was clear and healthy.

As the urethra was so sensitive and the stone so large, lithotomy was indicated; but considering that the patient was so old, and that he was suffering from asthma, it was deemed most advisable to crush the stone. Accordingly, on Oct. 12th, Mr. Smith introduced a lithotrite whilst the patient was under chloroform, and broke up the stone into several fragments.

Oct. 19th. Very little irritation followed this operation. Several pieces of stone have come away, some of them of a large size.

Nov. 29th. Lithotrity has been performed on three several occasions since the first crushing, with the effect of producing very little irritation in the urinary organs; but each operation has resulted more or less in increasing the dyspnœa for a time. Numerous fragments of the stone, as well as sand, have come away.

Dec. 4th. The lithotrite was again introduced to-day, and a fragment of considerable size was detected and thoroughly broken up.

16th. The last operation has been followed by severe inflammation of the mucous membrane of the bladder, accompanied with great suffering, and large deposits of mucus and pus. These symptoms lasted for some days, and were hardly at all relieved by opiates internally and by the rectum, or by pareira brava. On the 14th, infusion of buchu was substituted for the pareira, and the effect of the medicine was remarkable. The symptoms all began to decline, the urine became perfectly clear, and in a few days the patient stated that he was quite free from any signs of stone. As so much irritation had been produced by the last operation, which had been conducted with the utmost care and gentleness, Mr. Smith did not think it prudent to introduce a sound into the bladder to ascertain whether any fragments of stone remained. The patient was dismissed Dec. 23rd, free from symptoms of stone, but still suffering a good deal from shortness of breathing.—*Lancet, June* 21, 1862, *p.* 663.

38.—ON THE USE OF ELECTRICITY FOR THE CURE OF HYDROCELE.

By Dr. Julius Althaus, London.

In cases where the absorption of effusions in superficial tissues is to be promoted, both Galvanisation and Faradisation may be advantageously employed. Thus, cases of *hydrocele*, in which both the injection of iodine and the seton had failed, have been

cured by the use of either of these methods; Faradisation is, however, preferable from being less troublesome. The proceeding in hydrocele should be as follows:—Two acupuncture needles are introduced, the one into the upper, and the other into the lower part of the tumour; and the free extremities of the needles are then connected with the poles of the induction machine. The current should only begin to act after the introduction of the needles, because otherwise, violent pain would be caused on lodging them in the sac. We must also take care that the points of the needles should project into the fluid, as if they are merely passed into the subcutaneous cellular tissue, or the tunica dartos, the current would only act upon these membranes, but not upon the tunica vaginalis and the fluid accumulated in its sac. At first a mild current should be used, which may be gradually increased untill the patient complains of pain. The operation should last about twenty minutes; at the same time gentle pressure may be exercised upon the tumour. Immediately after the operation, the scrotum appears puffed, and the quantity of fluid in the sac is generally diminished. Sometimes the hydrocele disappears within the twenty-four hours after the first operation; in other cases three or four operations are required for effecting a cure.—*Med. Times and Gazette, Sep.* 13, 1862, *p.* 271.

39.—ON INCONTINENCE OF URINE.

By Thos. Bryant, Esq., Assistant Surgeon to Guy's Hospital.

If we exclude from our consideration all those cases of so-called incontinence of utine, the result of an over-distension of the bladder from retention, whether produced by stricture, enlarged prostate, or any other cause; and confine the term simply to that condition of bladder which allows the urine to pass out as rapidly as it passes into its cavity, we shall find that it arises from many and apparently very different conditions.

The worst is, unquestionably, that which is produced by an inflammation of the bladder, and is due to an extreme degree of irritability; in some cases being the result of the presence of a calculus, in others of inflammation from other causes; the bladder in such instances appearing to be so incapable of dilatation as almost to cause it to be regarded as a cavity, and to become part only of the urinal canal.

The incontinence is, therefore, only a symptom of more serious disease, and requires no special treatment.

The class of cases, however, to which the term incontinence of urine appears more correctly to apply are of a very distinct nature; in none of these is there any symptom of local organic disease, but the incontinence appears to be produced simply as

a result of want of nervous and muscular power in the vesical walls.

It is found most frequently in young children, or in hysterical girls, but it is occasionally seen in adults, male or female, of a delicate and cachectic nature. It is the only affection from which they suffer, and the incontinence is apparently their only disease.

In some severe cases the incontinence is constant, urine flowing through the urethra as secreted and poured into the bladder; but in others it is not so; during the day the patient can in many cases prevent its flow, but during the night it passes involuntarily; it may be that it is not then quite constant, but appears only when the bladder has become distended beyond a certain point.

To all appearance the bladder and urinary passages are quite healthy, and the spinal system appears free from disease; the incontinence being evidently due to some functional derangement, and does not depend upon any visible organic changes.

In the majority of these cases which have fallen under my observation, I have found the urine to be very limpid and abundant, and in some instances phosphatic; and I have been led into the belief that this incontinence is very frequently the result of great irritability of bladder, induced by the contact of its mucous lining with urine, which, if not alkaline, is not at any rate sufficiently acid for the normal relations between the two to be maintained.

The treatment which is generally found of value in this affection tends to support this view, as the tincture of the muriate of iron is unquestionably the most valuable drug, and the urine under its use rapidly changes its limpid nature.

In cases of hysteria, doubtless, the incontinence depends upon the want of mental effort to restrain the flow, aided more or less by the causes which have been previously specified.

The treatment which is to be followed in these cases has been already hinted at. Tonics are evidently indicated; the acid preparation of iron being the best, given in twenty minim or half-drachm doses, three times a day; the drug acting, in certain cases, as a charm.

Case.—A boy, aged fifteen, applied to me some months back with incontinence of urine of twelve years' duration; it was constant during the night, but during the day he had some power of retention. His urine was limpid, and somewhat abundant.

The tincture of the muriate of iron was given in fifteen-drop doses, three times a day, and in two weeks he was quite well. The use of the drug was, however, persevered in, and six months after I saw him he had experienced no return.

The patient should be lightly covered at night, and should sleep upon a hard bed; any means being employed which will prevent the patient lying upon his back—some hard object, such as a stone tied in a handkerchief over the sacrum, being a ready and useful means.

Belladonna, as a remedy in this disease, has given me disappointment; it has been highly extolled, but in my hands has not proved of much value. The acid preparation of iron being the best. Nux vomica, and other vegetable tonics, are in some cases of great value, but they not do appear to be of equal value with the mineral tonics.

All hygienic mental and corporeal treatment must be at the same time carried out, the disease generally disappearing with improved powers.

I have the record of sixteen examples of these affections, which were admitted into the hospital; the majority of these cases are, however, treated amongst the out-patients, and with success.

I have also the notes of six cases of incontinence after the operation of lithotomy, and in them some slight relief was afforded by a tonic treatment, but as a rule these cases are obstinate in their nature, and too often defy all our efforts for their relief.—*Guy's Hospital Reports*, Vol. VIII., 1862, *p.* 221.

DISEASES OF THE SKIN.

40.—EMPLOYMENT OF THE SARRACENIA PURPUREA, OR INDIAN PITCHER PLANT, AS A REMEDY FOR SMALL-POX.

By H. Chalmers Miles, Esq., F.R.S., Assistant Surgeon, Royal Artillery.

[We gave in our last volume (at p. 33) a short article on the employment of the Indian pitcher plant in small-pox. This article was written by Mr. Chalmers Miles, and was only read by Dr. McWilliam at a meeting of the Epidemiological Society of London. Since the publication of that paper many fresh particulars have been obtained by Mr. Miles, which enable him to recommend its employment on the widest and most extensive scale.]

The Sarracenia purpurea, vulgarly called Indian cup or pitcher plant, side-saddle flower, huntsman cap, fly-trap, trumpet plant, or *muc-ca-kem-ma-dos*—i. e., frog's leggings, by some Indians, is an indigenous perennial plant, and may be found throughout the whole of North America and the Lower Provinces, its actual

limit being from the bleak coast of Labrador to the wide savannahs of Florida and the shores of the neighbouring gulf. The sarracenia belongs to the tribe of water plants, and is only found in wet, marshy ground; but it grows in such places in great abundance. Wood, in his "Class-book of Botany," says the plant "belongs to the natural order *Sarraceniaceæ*, Sex. Sys., *Polyandria Monogynia*. The leaves, or *ascidia*, are from six to nine inches in length, radical short-globose or cup-shape, having a broad lateral arched wing, from a half to an inch in width, and extended on outside of mouths into a broad, cordate, erect lamina or hood, covered with reversed hairs. The *scape* is from one to two feet in height, terete, smooth, and supporting a single, reddish-purple flower of large size." This terminal flower has two flower cups, the external consisting of three small leaves, the internal of five leaves—egg-shaped, shiny, obtuse, and of a brown colour. The blossoms (five in number) are guitar-shaped, repeatedly curled inwards and outwards, and finally reflected over the stigma, which is broad and spreading, divided at its margin into five bifid lobes, alternating with the petals, and supported on a short cylindrical style; this is surmounted by the stamens, which are numerous, having short threads and large two-celled yellow anthers attached on the under surface. Usually there are six long leaves or pitchers to each plant; the leaf springs from the root, and is formed by a large hollow tube, swelling out in the middle, and curved and diminishing downwards, till it terminates in a trumpet-shaped appendage, which is hirsute on the inner surface. The hairs, as already mentioned, point downwards, probably to impel the insects, &c. which move on the lip or lid of the cup, to pass into it. The leaves lie on the ground, their stems embedded in moss, and half concealed by wet twigs and creepers, with their mouths turned upwards, and the trumpet-shaped appendage or lid thrown partially backward and outwards, so as to be ready to receive any rain that falls. Each pitcher holds about three ounces of water, and it is a likely supposition that the water insects, &c. which creep into the pitchers, decompose, or become digested, and thus go in some way to form nourishment for the plant. Dr. King, of Cincinnati, writes: "There are several varieties found in the swamps of Massachusetts and in the south, such as the *S. heterophylla*, *S. rubra*, *S. flava*, *S. variolaris*—all of which probably possess similar medical virtues. The root of the *S. purpurea* has a bitter and astringent taste, and yields its properties to water. It contains colouring matter, resin, an acid salt of lime, and an *unknown* salt and lignin."

It appears that the Sarracenia purpurea has been known (though imperfectly) for some years to the class of medical practitioners known on the American continent under the title of

"Eclectics," and the *leaves* of the plant (valuable as deobstruents and cathartics) have been sparingly passed in medical commerce in some Atlantic cities. The root, though it was experimented on so far back as 1847 by Dr. Porcher, of South Carolina, is still unknown, and has been scarcely used as a medicinal agent. Prof. Cleaveland, U.S., however, has pointed out its well-marked effects on the ganglionic system, and makes the following remarks:—"My experiments are confirmatory of the utility of the plant in cases where there is a sluggish or torpid condition of the stomach, intestines, liver, kidneys, uterus, and the various functional derangements; and it must be evident that this plant possesses valuable properties. It is even possible that a *new salt similar in importance* to morphia or quinia *may be extracted from it*, and thus a new and valuable remedy may be added to our materia medica."

This last observation of the learned American professor concludes my digest of the book-lore of the subject. Doubts, however, have been expressed as to whether the medicinal properties of the Sarracenia purpurea are best extracted by cold or by boiling water; questions have been asked as to in which condition—in the dry or recent state—the root may be considered most efficacious; while experiments have been made to ascertain if the *leaves* possess similar properties to the *root*. On these points I will essay an answer.

It has come to my knowledge, since the last notice, that the existence of a remedy for small-pox had been for a long time partially known to some of the North American Indians, but only a few in a single tribe possessed any clue as to the nature of the herb whence the root was obtained. The Micmac squaw, who alone knew that the root of the Indian cup plant was the remedy in question, gathered it in great secrecy, and merely served to the applicants for her aid such quantities of the medicine, in the form of a herb tea, as were required, either when small-pox was prevalent in certain districts, or only its approach apprehended. It was during the last outbreak of the disease amongst the Indian settlements in Nova Scotia that the decoction of the root achieved its greatest triumph; that the faith in in its efficacy became widespread and general; that wherever administered with timely zeal, recovery seemed assured; and that large numbers in the plague-stricken camps took occasional small doses of it, in the belief that it acted with prophylactic effect. Now the Indian authority for its use asseverates, with peculiar emphasis, that the *root* alone is efficacious in small-pox; and that preparations of the leaves are *useless* in *that* disease. The directions urged to be adopted are, that the root, when fresh gathered, should be at once slowly and thoroughly dried, the thin fibres around it pared away, and the firm solid root

alone used. The method of making the decoction is to slice from one to two ounces of the dried root into thin pieces, place them in an earthen pot, add a quart of cold water, and permit the liquid to simmer gently over a steady fire for two or three hours, so as to lose one-fourth of its weight. It was repeatedly asserted that the *fresh* root was not so powerful as the *dried* root, made into a decoction as described.

Observations.—1. In the case of an individual suspected to be under the influence of small-pox, but with no distinct eruption upon him, a large wine-glass of an infusion of the root of the plant Sarracenia purpurea, or pitcher plant, is to be taken. The effect of this dose is to bring out the eruption. After a second or third dose, given at intervals of from four to six hours, the pustules subside, apparently losing their vitality. The patient feels better at the end of each dose, and in the graphic expression of the "Micmac," "knows there is a great change within him at once."

2. In a subject already covered with the eruption of small-pox in the early stage, a dose or two will dissipate the pustules and subdue the febrile symptoms. The urine, from being scanty and high coloured, becomes pale and abundant, whilst from the first dose the feelings of the patient assure him that "the medicine is killing the disease." Under the influence of the remedy, in three or four days the prominent symptoms of the constitutional disturbance subside, although as a precautionary measure, the sick person is kept in camp until the ninth day. No marks of the eruption (as regards pitting, &c.) have been left in cases examined, if treated by the remedy.

3. With regard to the medicine acting (as is believed by the Indians) in the way of a preventive, in those exposed to infection, it is curious to note, that in the camps where the remedy has been used the people keep a weak infusion of the root prepared, and take a dose occasionally during the day, so as to "keep the antidote in the blood."

The above observations were borne out in every instance in which the remedy was used amongst the Indians, and are thoroughly corroborated in the case of a white person which is narrated below.

The most marked results of the administration of the Sarracenia purpurea in persons already covered with varioloid eruption, are—

1. Rapid diuretic action, with immediate lessening of the febrile symptoms; and, more tardily, it acts as an evacuant on the large intestines.

2. On a repetition of a dose of the decoction (which perhaps

should be given after three or four hours, instead of at longer intervals), the mitigation and obvious improvement, should any symptoms of cerebral disturbance be present.

3. Its extraordinary effect (within a brief period) in altering the *character* of the cutaneous eruption. It seems to arrest the morbid process, and induce a healthy instead of diseased action. The pustules appear simply to be deprived of their vitality; they desiccate and fall away.

4. The prevention of *pitting*, consequent, it may be supposed, on the whole nature of the pustule being changed in the manner just noted.

In all practicable instances it is desirable that the administration of the decoction should be commenced as soon as well-defined symptoms of variola are declared, and that no other medicine (save a purgative if absolutely indicated) be given.

I will here submit the case to which allusion was made. It is furnished me by Dr. Jas. H. Richardson, of Toronto, who has also, with the frankest courtesy, given me much other valuable information :—

"L. M. N., (the son of a clergyman), a young man enjoying moderately good health, aged twenty-one, contracted small-pox, the disease being prevalent at the time in the General Hospital at Toronto. He began to complain on the 8th of April last, but was not seen by me till the 13th. He was then suffering from intense headache, combined with partial stupor, and had the usual symptoms of variola. The eruption had just appeared first about the groin, but in the subsequent twenty-four hours spread over the face, trunk, and extremities. He had been vaccinated in childhood. The eruption, however, did not appear modified, but continued to run its course, as in a case of pure small-pox. The constitutional disturbance, though relieved as the eruption came freely out, was very great, and gradually increased; the pulse continuing very quick, the tongue much coated, urine very scanty, bowels costive, and delirium very violent and nearly constant. I had early unloaded the bowels, and had given him freely salines and sedatives; but the treatment generally appeared of no service whatever. On the fourth day of the eruption his condition in every respect was much worse, and I then determined to try the sarracenia purpurea. It was not, however, procured until late on the next day (the decoction was of the strength of an ounce of the dried root to a pint, and given in wineglassful doses every four hours). The result after a few hours (the third dose) was most encouraging; the pulse diminished in frequency; the delirium nearly ceased, becoming entirely changed in character (his father, who watched him, remarking that the delirium seemed to lose all its terrifying

conceptions, and that its wanderings seemed soothing, gentle, and associated with his ordinary pursuits); the urine increased in quantity, and became pale; the tongue commenced to clean; and the bowels acted of themselves. On the eighth day (just two days and a night from commencing the sarracenia) slight secondary fever set in, on the ninth the pustules began to dry up, and on the tenth the medicine was discontinued, convalescence having commenced. He shortly recovered *without being pitted*, although the eruption was confluent on the face."

The father of this young gentleman also remarks—"You may recollect Dr R. remarked, after the decoction had been taken for two days, that the pitting of the pustules seemed arrested."

Concerning this case, Dr. Richardson notes: "On the whole, I must conclude that the effect produced by the sarracenia was most satisfactory and well marked. The disease continued very severe until it was administered, and became entirely changed in its severity after the administration of the third dose, the effect being due to it alone, as no other medicine was given after it was commenced. I am forced to the conclusion that the secondary fever was much controlled by it, and that desiccation took place much more rapidly than would have occurred otherwise. I shall now give it a more early trial, and have every confidence in its beneficial effect."

In a scientific point of view, the greatest interest will undoubtedly attach to those cases of natural, unmodified small-pox in which the remedy is used, and I trust before long that many intelligent observers in all parts of the world may have it in their power to obtain the root, and give it as ample a trial as their opportunities will permit. In military medical practice in the United Kingdom, it can scarcely happen that such cases will be presented; but many examples—in Africa, China, Australia, and our foreign possessions, especially in some of the enormous districts in the Eastern Presidencies, where vaccination can be at best but incompletely carried out—many examples, I think, of pure, unmodified small-pox may be selected, and a wide employment of this medicine be easily undertaken. So much, indeed, has attention already been awakened as to the efficacy of the Sarracenia purpurea in small-pox, that I can hardly doubt, in many parts of Canada and in the Northern States, every opportunity is being chosen for its trial, and that even now many interesting and important facts are silently accumulating on that vast continent.

The learned and distinguished President of the Epidemiological Society, Dr. Babington, assures me that, on receipt of the root in sufficient quantity, Mr. Marson, of the Small-pox

Hospital, has determined to afford it a thoroughly satisfactory trial; and I hope that other of my professional brethren in civil life, with similar wide opportunities for collecting authentic data, will likewise be able to test its "medical virtues" in a large number of cases. If the Director-General of the Army Medical Department is also pleased to sanction its employment on trial by the medical officers of the army, scattered broadcast in every country in the world, in a comparatively short time we shall be able to generalize and digest a vast mass of well-selected and carefully arranged facts.

I do not think that the importance of this matter can be overrated, for if the "Indian Remedy for Small-pox" comes out as completely successful on general trial as it has certainly proved amongst the "tawny Micmacs," it will practically create an entire revolution in medical practice, and become, with God's blessing, the means of incalculable good in every land on which the sun shines.

P.S.—Considerable quantities of the dried root of the Sarracenia purpurea have either been or are about to be shipped by my direction from Canada and the States, consigned to Messrs. Savory and Moore, of London. I have requested this firm to issue, *free*, a small quantity to any of the medical societies of the metropolis who may wish to apply for it. The Sarracenia purpurea will (for a very long time) only be obtainable (genuine) in England at Messrs. Savory and Moore's; and this firm, I apprehend, will retail it just at the price per lb. which will cover the expenses incurred.*—*Lancet*, *Oct.* 18, 1862, *p.* 430.

41.—ON THE TREATMENT OF SMALL-POX.

By Dr. Christopher J. Cleborne, Assistant-Surgeon, U.S.N.

It is now conceded by all dermatologists, that the cause of pitting in small-pox is due to the disintegration of the derma or true skin, by the corrosive action of the virus contained within the pustule, or, more properly speaking, to that portion of matter inclosed in a small sac, in the centre of the pustule. The writer is inclined to believe, from observation, that this lesser sac is formed from the disk of whitish pseudo-membranous matter found on the upper surface of the derma, and which in the earlier stages of the eruption is adherent to the inner surface of the cuticle, and less firmly attached to the cutis beneath. During the progress of the eruption, a clear albuminous fluid is exuded, which in a short time becomes turbid, and is finally converted into pus. This liquor gradually separates the disk from

* Since the above was written, Messrs. Savory and Moore have received the root, and it is now on sale.

the true skin, and from its attachment to the epiderma, after which the edges of the disk unite together, or more frequently to the inner surface of the cuticle, inclosing within the sac thus formed a purulent matter, arranged in minute cells like an orange. This matter being more acrid than the fluid by which it is surrounded, is said to be the cause of ulceration of the tissues, or pitting. To obviate the effects produced by this acrid matter, we must endeavour to prevent maturation of the pustules, or by some means get rid of their contents, before the ulcerative action takes place.

The resolvent properties of the iodide of potassium suggested it to the writer as an agent from which might be derived all the advantages heretofore obtained from the use of mercury, iodine, or blisters. He has been much pleased with his success in the use of this remedy as an external application, and is convinced of its value from observation and experience.

In recommending the following formula to the notice of the profession the writer begs to claim for it a fair and impartial trial; having found it successful in his own practice, he is the more confident of its good effects and success in the hands of more skilful and experienced practitioners:—℞. Potassii iodidi ʒxij.; maranta ʒj and ℈j; glycerin fʒij; ol. bergamii gt. xl. Divide the glycerin into three equal parts; in the first portion dissolve the iodide of potassium, using heat if necessary, and add the oil of bergamot; put the second portion of the glycerin into a porcelain capsule and heat it over a water bath; then mix with the remaining portion of the glycerin the arrowroot, triturate well in a glass mortar, and gradually add it to the boiling glycerin while cooling; it should be stirred with a glass rod continually and the solution of iodide of potassium added by degrees, until the mixture becomes of a transparent appearance and of the consistence of jelly.

The plasma may be applied by means of a camel's-hair pencil, of the size usually sold as throat brushes. As soon as the eruption makes its appearance it should be used, and repeated applications made throughout the day and night. A mask of oiled silk may be placed over the face, but is not by any means necessary. The face may be cleansed when the pustules burst by sponging with tepid water; it would be well to do this frequently for the sake of cleanliness, the comfort of the patient, and the success of the application.

The strength of the preparation should be increased or decreased as the practitioner sees fit, and according to the circumstances of the case, the age and tenderness of the skin being at all times considered. To the discutient properties of the iodide of potassium may be attributed its effect in producing a resolution of numbers of the indurated papulæ, while at the same

time it checks the advance of others into the vesicular stage, its good effects upon the eruption in the advanced stages is due to its producing a partial solution of the epiderma, so that when the pustule is fully formed, the pus contained therein can easily burst through the softened cuticle, and by this means the ulcerative action of the virus on the cutis vera is effectually prevented. —*American Journal of Medical Sciences, April*, 1862, *p.* 333.

42.—*Treatment of Pityriasis of the Scalp.*—M. HARDY, after having had the hairs cut off, commences with emollient lotions or ointments so as to overcome the dryness of the skin. Soon afterwards he endeavours to modify the cutaneous secretion by the use of soapy solutions, which he prefers to solution of carbonate of soda or potass. But the means which best succeeds in his hands is the employment of sulphur in the form of baths and ointments; of these last he prefers that made of one part of flowers of sulphur to thirty of lard; another good application is one part of nitric acid to thirty of lard. Preparations of sulphur are at the same time given internally, and a non-stimulant regimen is enforced, all high-seasoned food being prohibited.—*Gazette Med.—Med. Times and Gazette, Sept.* 6, 1862, *p.* 263.

43.—ON THE SUBCUTANEOUS TREATMENT OF BOILS AND CARBUNCLES.

By JOHN GEORGE FRENCH, Esq., Surgeon to the Infirmary of St. James's, Westminster.

I have occasionally, during many years, adopted a mode of treatment for boils and carbuncles which has been attended with great advantage to the patient, and which I will at once proceed to describe. The extent of the induration of the integument is first carefully examined, and then a tenotomy knife is passed horizontally underneath it, the blade turned upwards, and, the forefinger of the left hand serving as a guide upon the upper surface of the tumour, the hardened structure is cut through, taking care not to wound the surface of the skin; it is, in fact, a subcutaneous division of the disease, and is carried to the utmost extremity of the induration.

The disease, previously spreading, is at once arrested in the direction of the knife, but it is necessary to make a second puncture at right angles with the first, and thus a crucial incision, or it will still spread in the opposite direction. The bleeding is sometimes considerable, sometimes trifling, and when this has ceased, the whole surface of the tumour should be covered with collodion.

Immediate relief is felt by the patient as the result of this proceeding, and he is able at once to pursue his ordinary avocations.

The inflammation speedily resolves, or if any suppuration whatever occurs, it is in very small quantity, and easily finds vent through one of the punctures.

The following cases will serve to illustrate the subject, but they only comprise a small portion of my experience of this mode of treatment :—

Case 1.—A lady, residing in the country, brought her daughter to London in May, 1848, for the express purpose of going to some balls. On the day before the first party the young lady was attacked with a boil on the face; this, from previous experience, she well knew would render her wholly unfit to be seen at a ball. Being consulted as to the possibility of anything being done, I expressed a favourable opinion if the patient would submit to a painful remedy, which, being agreed to, a fine tenotomy knife was carried under the small round tumour, the hard structure cut through without wounding the skin externally, except at the points of puncture, two incisions were made crucially, and, after the bleeding had subsided, the surface was smeared with a varnish consisting of a saturated solution of gum arabic. No inconvenience was felt the following day, all inflammation had subsided, two minute pieces of court plaster concealed the punctures, and she was able to go to her party with perfect comfort.

Case 2.—A merchant, in 1854, was terribly annoyed by a succession of large boils, which frequently interfered with his attention to business. Having been obliged to go to the city on urgent business with a large boil in the groin, it became so painful that he drove to my house in a cab on his return, with the hope of gaining immediate relief: although he resided on the opposite side of the street he detained the cab, feeling incapable of walking a single step. Here the longest tenotomy knife was insufficient to reach the extremity of the disease, and it was obliged to be introduced again at the opposite side to complete the section in its longitudinal direction. A crucial incision was also made. So complete was the relief afforded to the patient that he at once discharged the cab, delighted that he could walk without pain. The wound rapidly healed.

Case 3.—A gentleman called on me on the 1st June, 1862, with a carbuncle on the back of his neck of two or three days' duration, the pain of which had prevented his sleeping the previous night. The subcutaneous division of the indurated structure was made by three incisions in the form of a star (*sic* *). He was at once greatly relieved, could move his neck

without pain. After the bleeding had ceased the whole surface of the disease was covered with collodion. A small quantity of pus was discharged through one of the punctures for three days, and in six days the skin was quite healed and sound. This gentleman was able to attend to his business during the whole period of treatment.

Remarks.—This operation being somewhat slow and painful it is only where an immediate result is greatly desired that I venture to adopt it, preferring generally the quicker method of dividing the integument completely, but it is interesting to know the fact of its invariable efficacy. An inquiry is often made by the patient whether the malady will return elsewhere if thus suddenly arrested? I do not find that a second boil or carbuncle occurs when thus interrupted more frequently than when the disease is left to take its course; on the contrary, where poultices are used a recurrence is frequent; indeed, this remedy, when used for other disorders, often seems to produce the disease.

With regard to larger and more neglected carbuncles, where the life of the patient is endangered by their extent, it is worth while making the remark that the disease can at any time be arrested by the knife *while it is still spreading*. But the *crucial* incision is often insufficient where the disease has acquired the size of a cheese plate. It will spread at the circumference between the longitudinal and lateral incisions at some point or other, and an incision made here at once still arrests its progress. A large carbuncle will, therefore, often require to be *starred* to arrest it completely.

What is called *opening* a carbuncle, that is, making a free incision simply or crucially in the centre, does not, so far as my observation goes, appear to do much good; and I think the doubt about the good effect of operative procedure, which exists in the minds of some, is due to the observation of this method alone.—*London Medical Review, Sept.* 1862, *p.* 130.

DISEASES OF THE EYE AND EAR.

44.—ON GLAUCOMATOUS AFFECTIONS, AND THEIR TREATMENT BY IRIDECTOMY.

By William Bowman, Esq., F.R.S.

[There are yet several distinguished ophthalmic surgeons who reject the treatment of glaucoma by iridectomy. The following paper on this subject was read by Mr. Bowman, at the Thirtieth Annual Meeting of the British Medical Association, held in London in August last.]

Whatever the essential nature of the glaucomatous state, we as practitioners are chiefly concerned with the *augmented tension of the eyeball* which attends it. This we have to distinguish at the earliest stage, and towards the mitigation of this our treatment is to be directed. As a practitioner, having to relieve disease, I call *all undue tension* of the eye *glaucomatous tension.* The object of treatment is to reduce this within natural limits; for, if it continue, the result is inevitable, however delayed.

A person unused to close and accurate examination of the physical condition of the eyeball, even though he be seeing eye diseases frequently, may readily fall into error on this important matter of *the state of the globe as regards tension.* He may suppose that the increased tension may depend simply on the degree of fulness of vessels, or on the amount of effused fluids within the eye. No mistake could be greater. It cannot be too strongly impressed on all who may have to discriminate between glaucomatous and other diseases, that the depth of redness of the eye, or the presence of more or less of effused blood, or serum, or lymph, or pus within it, has no connection whatever with the question of tension, since all or any of these may be present in a high degree without any glaucomatous disease, any increase of tension, and therefore without the indication such tension gives for its relief by iridectomy.

In various congestive or inflammatory states, whether of cornea, sclerotica, choroid, iris, or retina, or of some or all of these, the disease may be of more or less intensity, may run its course more or less rapidly, and may do permanent damage to the structures involved, without our detecting any augmented tension of the coats at any period. Intraocular hemorrhages, as a rule, even when considerable, are not attended by a higher tension; often, indeed, by a diminished size of the globe contents, and an unnatural softness of the eye. Subretinal effusions of blood or serum are, in the great majority of cases, unmarked by any increase of tension.

On the other hand, exalted (or glaucomatous) tension may occur, intermittently or persistently, in eyes which afford no indication whatever of inflammation, where there has never been any pain or vascular excitement, and where there is still an absence of inflammatory effusions. Such augmented tension, though slight in degree, may effect by long continuance, and without any intercurrent inflammatory complication, what a pressure more intense will effect in a much shorter time, especially if, as then usually occurs, it becomes complicated with subacute or acute inflammatory action.

I must add, however, to avoid the risk of misconception, that various affections of the eyes, not glaucomatous in their origin, may present in their course glaucomatous complications—*i. e.*,

become combined with an augmented tension of the eye, and with the secondary results of pressure; and hence that it is of the highest importance, in practice, to distinguish accurately whether, and when, such complication has arisen, since, under several contingencies, it may need the application of iridectomy.

Thus the idea of inflammation must be disassociated from that of glaucoma and glaucomatous tension. Though often combined, and the combination then of the greatest importance, yet their co-existence is not essential to the presence of either; and, as a matter of fact, they occur independently of each other every day.

It is now my constant practice, when defective vision is complained of, to ascertain almost at the first instant the state of tension of the eye. To do so strikes at once home to the diagnosis. If undue tension exist, there are also its great and peculiar risks; and the question of its relief by a surgical proceeding at once arises in the mind. Though it does not necessarily follow that this must be performed, the scope of inquiry is greatly narrowed. The use of the ophthalmoscope probably soon decides in a positive manner the cause of the blindness, and the details of the case are speedily filled in.

It is easy enough to estimate the tension of an eye, though there is a right and a wrong way of doing even so simple a thing. I may, therefore, explain that *both forefingers* should be used together through the upper lid, which is to be gently closed. One finger steadies the eye by pressing against it with a suitable degree of force, while the other estimates the tension; or rather both together estimate it, when thus used in concert. I tell the patient to *close the eyes gently, as if asleep;* and the fingers are then applied to the upper part of the globe, behind the corneal region. If the patient *forcibly* compress the lids, the mere action of his muscles may cause a momentary tension of the eyeball as well as interrupt the examination. If the eyeballs are deep-set or small, the determination of the tension is less easy. With medical men, the touch is already an educated sense, and a very little practice will suffice to apply it successfully to the eye.

I have long paid special attention to the subject of tension of the globe, and particularly since it has assumed so much additional importance in the last few years. I have found it possible and practically useful to distinguish nine degrees of tension; and, for convenience and accuracy in note-taking, have designated them by special signs. The degrees may be thus exhibited.

T represents *tension* ("t" being commonly used for "tangent", the capital T is to be preferred). Tn, *tension normal.* The interrogative, ?, marks a *doubt*, which in such matters we must often be content with. The numerals following the letter T, on the same line, indicate the *degree of increased tension;* or, if the T be

preceded by —, of *diminished tension*, as further explained below. Thus:—

T 3. *Third* degree, or *extreme tension.* The fingers cannot dimple the eye by firm pressure.

T 2. *Second* degree, or *considerable tension.* The finger can slightly impress the coats.

T 1. *First* degree. *Slight* but *positive increase of tension.*

T 1 ?. Doubtful if tension increased.

Tn. Tension normal.

— T 1 ?. Doubtful if tension be less than natural.

— T 1. First degree of reduced tension. Slight but positive reduction of tension.

T — 2 } Successive degrees of reduced tension, short of such
T — 3 } considerable softness of the eye as allows the finger to sink in the coats. It is less easy to define these by words.

In the very limited time allotted to me, I cannot pretend to do more than glance in the most summary way at what most interests us as practitioners.

The cases of glaucomatous disease in which it is most difficult to appreciate the applicability of iridectomy are those of *very chronic and insidious course* (the chronic glaucoma, and the amaurosis with excavation of the optic nerve, of Von Graefe; the simple glaucoma of Donders), where the increase of globe-tension either is slight, variable, and more or less intermittent; or, if it at length comes to be considerable in degree, does so by such gradual steps that the tissues of the eye slowly accommodate themselves to the results of the pressure, and the optic nerve passes through its atrophic changes without any excitement of the vessels, without pain, without any active symptom whatever. If one eye continue sound, the patient may thus lose most or all of the sensibility to light in the other retina without being aware of it (of course, a similar loss may occur from other causes than glaucomatous tension); and he may often first make the discovery when the better eye begins to fail. More often, however, both eyes fail together, with equal or unequal steps. The slowness of the progress towards blindness, the absence of any urgent symptom, the fact that vision in the centre of the field frequently remains good to a late period while the marginal portions of the retina are more and more decaying, often the age and feebleness of the patient, his despondency, and the protracted anxiety of friends, may disincline us from advising an operation, especially if the other eye still sees perfectly. The question of an operation, indeed, often is not raised until the retinal and other tissues have already undergone much change, and when, therefore, less recovery of structure can be expected to follow the relief of tension.

The result obtained is frequently only the retention of what little vision may yet remain; and the patient may still appear, and in fact feel, very like a blind person. During the last five years, I have had the responsibility of advising in very many such cases. In the more advanced stages, I have not felt able to urge the operation strongly; and yet I have recommended it as the only means of saving the little sight remaining. Where there is more sight left to be preserved, the operation is to be more insisted on; but, unfortunately, the patients, not being so blind, are often less disposed to submit to it. The progress of structural changes in the eye, marked by narrowing of the visual field, should induce us to urge iridectomy; and the earlier we perform it, the better chance there will be of deriving improvement; for we cannot recall the activity of nerve-fibres that have undergone complete atrophy.

The *subacute form of glaucoma*—glaucoma with subacute inflammation (Donders)—is one in which iridectomy is *to be urged* without unnecessary delay. Its results have been most encouraging; and a large number of cases, in which all glaucomatous symptoms have permanently subsided after its performance, amply attest its value. Did time permit, I could relate numerous instances of persons thus affected, who, I have no doubt whatever, would long since have been totally blind, but for the timely aid thus afforded them. Here relief to circumocular pains, and an extension of the contracted visual field, may be anticipated; while the retina also becomes more acutely sensible in parts in which the perceptions were previously dull. This amelioration may continue to advance for many weeks, even for months or years, subsequent to the operation. It will be great in proportion to the earliness of the period at which the operation is resorted to.

But in the *acute form of glaucomatous ophthalmitis*—acute glaucoma (Von Graefe), glaucoma with acute inflammation of the globe (Donders)—iridectomy should be performed *without the slightest hesitation or the smallest delay.* Here every hour is precious, the urgency being measured by the intensity of the inflammation. The loss of sight results partly from the presence of inflammatory products in the substance of, and in front of, the retina; but also from the altered circulation in the nervous structure, and the intense pressure to which it is subjected. The operation relieves from both. The inflammatory state is allowed to subside; and the products of inflammation then undergo gradual, often very rapid, absorption. In addition, the eye is left without that exalted glaucomatous tension which probably preceded the outburst of the acute attack, and formed from the first the essence of the disease. If in any case this acute form of ophthalmitis is absolutely abrupt in its onset,

unpreceded by premonitory symptoms (which I doubt), I am still disposed to distinguish it from all the ordinary forms of inflammation, even though equally acute; and to connect it with that state of the nerves and blood-vessels which induces the non-inflammatory form of glaucomatous tension.

It is in the more acute cases of glaucomatous inflammation that punctures of the coats or chambers of the eye had been found beneficial before the introduction of the practice of Von Graefe. Such punctures, no doubt, may relieve tension to a certain extent, and for a certain time. They may give ease, and may cause the more intense symptoms to abate. Even without a puncture, the *acute inflammation* may subside, after running a certain course, and destroying sight. But it is most important to notice that, though a puncture may ward off for a time the destructive violence of the inflammation, a subacute excitement is likely to continue, relapses to occur, or, at any rate, the glaucomatous hardness of the globe to persist, under which eventual loss of sight is inevitable. It is not wise, therefore, to rely on this expedient.

As long as any perception of light remains in cases of acute glaucoma, I would earnestly counsel an immediate recourse to iridectomy. No abatement of the more pressing symptoms from bleeding or any other remedy, no improvement of sight, *while tension continues*, is to be for a moment allowed to weigh against it. And even though all sensibility of the retina have apparently lapsed, I should not quite abandon the hope of rescuing some sight, provided the course had been very rapid, and the total extinction of sight very recent. At all events, an iredectomy would not be even then too late to hasten recovery from the inflammatory symptoms, and to avert the after consequences of a hard and painful, as well as sightless, globe.

So many cases have been published of good recovery by iridectomy, from the otherwise fatal consequences of acute glaucoma, that I need not adduce others, even did time permit me. One of the most interesting I have had is that of the coroner of a borough in Suffolk, a lawyer of middle age, who some two years ago, had acute glaucoma successively in the two eyes in the course of a few months. For each he came to consult me; for the first, after about four days; for the second, within the second day, each eye being at the time all but blind. I instantly, in each case, performed iridectomy, and pursued no other treatment. The relief was immediate. The first eye regained an extended, though not a complete field of vision, the nasal side remaining blind, while with the axis of the retina he could read No. 4 of Jaeger (a small type). The second eye recovered perfect sight, and the amendment in both eyes continues, so that he has ever since uninterruptedly pursued all the

duties of a very active professional life, and calls sometimes to express his gratitude—a gratitude I feel to be rather due, like that, I rejoice to say, of many hundred other sufferers in various countries, to Von Graefe.

The importance of the subject must be my apology, if I now point out some of the common fallacies by which precious time is lost.

1. If the disease be more or less acute *i.e.*, complicated with more or less inflammation, it is often treated by topical remedies, as hot or cold applications, leeches, blisters, sedatives, or by purges, mercury, colchicum, opium, with low diet. The sympathetic vomiting ushering in the most acute form is mistaken for a "bilious attack," and the essence of the disease quite overlooked.

2. If it presents itself under one or other of its slower varieties, the particular cause is unrecognised, and the patient may be told, and the surgeon believe, that it is only "stomach," or "little gout"—formulæ of speech which, however convenient, seem to me to have a good deal to answer for, even now a-days. If it be true, as I know it to be, that no remedies given on any such loose notions can exert any salutary influence on the disease, even if the stomach be in fault, which is common, or the patient be really gouty, which is more rare, while the eye is gradually losing sight through a distension, which only a surgical proceeding can reduce, the sooner a more correct knowledge of the actual condition of the eye is obtained, the better for both parties.

3. Patients themselves are often alarmed by the idea of any operation, or they are afraid to take chloroform, or being feeble or old, or desponding, an operation is thought to be "not worth while"; or they have a dread lest it should injure the other eye from sympathy. Thus, taking counsel of their fears, especially in chronic cases, where no immediate urgency exists and they suffer little pain, what they regard as the evil day, but what is really the day of relief, is put off, often till it is too late. I have seen this so repeatedly that I must allude to it, even at the risk of appearing tedious.

I shall not easily forget the case of a feeble dyspeptic clergyman from Derbyshire, who called on me a fortnight since so altered that I hardly recognised him. Two years ago, he was in a deplorable state of despondency from blindness, far advanced, from chronic glaucoma; and I had the greatest difficulty in inducing him to submit to iridectomy. He is now able to do his full duty, and is happy and cheerful.

I have alluded, in very general terms, to three principal forms of glaucomatous disease—the slow non-inflammatory, the subacute, and acute inflammatory forms. These offer infinite

varieties, and are met with in various combinations, which it would be impossible to advert to in detail on the present occasion. But some of them may be specified.

There is an intermittent form, with perfect remissions; and if the attacks are rare, and moderate in degree and duration, they may do no structural damage to the eye during many years. Being excited by temporary causes, they may, in some measure, be guarded against; and it is only if they become frequent, and a continual source of disquietude and danger, that iridectomy becomes applicable. That most interesting phenomenon of iridisations, or rainbow-colours around a candle or light object, is very apt to occur in this form, as well as in the subacute variety. In simple glaucoma, it is uncommon.

There is a hemorrhagic form, one which I regard as of great and exceptional importance, and which is fortunately rare, since iridectomy is less certainly able to control it, or to save sight. Glaucomatous inflammation may supervene upon a hemorrhagic condition of the retina, with distressing pain, augmenting tension and decay of sight, and a relapse may occur again and again, after repeated relief following repeated iridectomy, the event being sometimes complete blindness, though some such eyes have been partially rescued. I could relate several interesting cases of this hemorrhagic form. Glaucomatous tension may also attend certain cases of iritis, whether that form formerly styled *aquo-capsulitis*, or *recurrent* attacks with *synechia*, and *choroidal affection*. In many of these I have found iridectomy of the utmost service; but I can only refer to them now.

There are also the complications of glaucomatous disease with cataract; glaucomatous tension coming on in the earlier or later stages of cataract.

An accurate diagnosis is most important here, as the glaucoma has first to be dealt with by iridectomy, and the cataract reserved for a future operation, after the glaucomatous tension shall have long ceased. The glaucomatous element will not admit of delay; the cataract will wait, indeed must; for to attempt to extract a cataract from an eye when in a glaucomatous state would entail great risk of destruction of sight from intraocular hemorrhage. But I have, in several instances, dealt in succession with the two several diseases with most satisfactory results. Nevertheless, the complication is a very grave one, and the treatment tedious.

For the supposed dependence of glaucoma on various blood-affections, experience affords slight warranty; albuminuria, diabetes, are rare with it; gout and rheumatism far from common. It often occurs in persons of excellent constitution, though most frequent in those whose nervous powers are depressed. Its

whole history points rather to its origin in certain states of the nerves supplying the blood-vessels of the eye; but the question is too abstract an one to be now entered upon.

I must now forego all reference to the operative procedure itself for want of time; or I might offer some hints supplied by an extended trial of several methods. I by no means wish it to be imagined to be always simple and free from risks; but these may be avoided by care, and are only what every such remedy is exposed to.

It may be expected of me, however, not to pass over altogether in silence Mr. Hancock's operation, called by him division of the ciliary muscle; and applied, as he informs us in the *Lancet* of last week, "with most success in keratitis, sloughing of the cornea, staphyloma, dense opacity of the cornea (in some cases of several years duration) and in conical cornea; also, in certain forms of amaurosis, in acute and chronic glaucoma, and in posterior staphyloma and myopia"—a list comprising diseases so widely different from one another, as to suggest a doubt whether a common principle can govern their treatment by the same surgical proceeding.

The incision through the coats of the eye, thus styled division of the ciliary muscle, involves, I believe, the sclerotic coat, a very small portion of the whole ciliary muscle, the ciliary body of the choroid, with the vitreous humour. In many instances, it appears to have evacuated the aqueous humour, while the vitreous humour must always either escape at the moment, or have liberty to drain away for some time afterwards. If it be of the essence of the operation to divide the inner or circular fibres of the ciliary muscle (Heinrich Müller's), then a consideration of the anatomy of the parts would show, I think, that the aqueous chambers are likely to be opened. If the humours of the eye escape, tension is, of course, relieved, and if much vitreous humour be lost, it is conceivable that even permanent reduction of tension may result. Experience only can determine whether such an operation may suit certain forms of disease; the proceeding may possibly have advantages in certain cases, although the hypothesis on which it is grounded prove untenable. Meanwhile, it seems desirable that the cases in which it is said to have effected so much, and on the strength of which the profession is urged to adopt it, should be published in greater detail, and with that regard to scientific accuracy which recent advances in knowledge demand. Particularly is this to be wished for, when we are asked to abandon in favour of this incision in glaucoma, the operation of iridectomy, the admirable results of which have now been tested by a wide experience, and guaranteed by many men fully capable of arriving at a sound conclusion.

[The following is added in accordance with a wish expressed by the meeting at which the above paper was read.]

Note on the Operation of Iridectomy for Glaucoma.—The operation is best done when the patient lies on a sofa on his back, with the surgeon standing at his head. I prefer to use chloroform, though I have often operated without it. It should be given so as to render the patient completely passive; for the great delicacy of the operation requires perfect quietude of the eye, lest the steps should not be severally completed in the most perfect way. My own opinion undoubtedly is that there is hardly any person to whom chloroform may not be safely administered; though, it is true, some subjects demand more care in its exhibition than others. The sickness may usually be avoided by taking care that no food be in the stomach at the time; and if it occur during the operation, the steps must be simply delayed while it lasts, and not varied in any way. If the sickness is very straining, so as to distend the vessels of the head and face, I usually close the eye, and gently compress it by the fingers on the lid, during the efforts at vomiting. I have not seen any harm happen from such vomiting, when the incision has been properly made; not too extensive, and not too far back from the corneal margin.

I always keep open the lids by the wire speculum, which an assistant holds a little forwards if it tends to exert pressure on the globe. It is well for the surgeon to be able to use the right or left hand indifferently in making the incision, as he can then select the most convenient spot. I have always preferred to make the iridectomy nearly or quite upwards; because I believe this direction to be as good as a lateral one in reference to the visual field, and the upper lid then covers the gap in a way useful both optically and for appearance sake. It is, however, rather more easy, on the whole, to make the iridectomy to one side than upwards.

I make the incision in one of two methods, according to the size of the anterior chamber. When there is space enough, it is best to use the triangular lancet-shaped blade, inclined at an angle on the flat, and which I believe is used generally abroad, as well as by Von Graefe. Having selected a place for the incision, I seize the conjunctiva with proper forceps immediately opposite, and thus fix the globe without making any pressure upon it, or pulling it from its bed. The lancet is then thrust in so as to enter the anterior chamber at its rim immediately in front of the attached border of the iris, and is carefully advanced towards the opposite side so as to form an opening of the required size; and if the opening cannot thus be made as large as is desired, it is enlarged at one angle on withdrawing the

blade. When, however, the chamber is shallow, I prefer what I at first always used; namely, a narrow extraction knife, running its point along the rim of the chamber for the requisite extent, and making the counter-puncture much as in ordinary extraction. Thus the instrument avoids the pupillary region and the lens. The operation is more difficult where the chamber is shallow. Whichever instrument be employed, it enters a little behind the apparent junction of the sclerotica and cornea, in the sclerotica, and in entering the rim of the anterior chamber, it usually passes across that junction and through a very little of the corneal tissue just in front of the pillars of the iris.

As the instrument used in making the incision is withdrawn, the aqueous humour escapes; and it is well to let it do so gradually, and to keep the point of the instrument towards the cornea rather than towards the lens. The iris may now be found either to remain in the chamber or to prolapse. If the former, the small slightly curved iris forceps are to be introduced (closed) into the chamber, and made to seize the iris opposite the middle of the incision, about midway between its pupillary and outer border. The iris is then brought outside the chamber and divided with small scissors, on one side of the forceps, from the pupillary to the ciliary border, the forceps pulling it gently at the same time, so as to ensure this complete division of it. The end held by the forceps is then torn from the ciliary attachment as far as the angle of the incision, and even dragged upon a little, so as to detach it beyond the angle, and then divided with the scissors quite close to the angle. The cut end then retreats within the chamber. The opposite side of the prolapsed part is then seized and dealt with exactly in the same manner. No iris should be left in the angle of the incision, lest the healing process be imperfect, and subsequent irritation occur.

If the iris at once prolapse on the completion of the incision (it is often bulged by aqueous humour of the posterior chamber), the forceps need not be introduced within the incision, but may seize it outside. The less any instrument enters the anterior chamber the better, for fear of damage to the lens.

If any blood flow into the anterior chamber during the operation, it is as well to allow it to escape before it coagulates. This is best done by inserting a fine scoop within the lips of the incision (not into the chamber), and at the same time by making, if requisite, slight pressure on the eye by the forceps which holds it. The cornea should not be pressed on, lest the lens receive injury; and, rather than run the slightest risk, the blood may be allowed to remain, as it is very soon dissolved by the aqueous humour, and flows out or is absorbed.

The operation just described ensures the excision of a complete segment of the iris, from pupillary to ciliary margin, of a

width determined by the size of the incision, and which may be usually about a sixth or a seventh of the whole circle.

After the operation, little is usually required beyond seclusion of the eye from light while it remains sensitive, keeping it cool by a wet rag as long as may be agreeable to the patient, together with ordinary attention to the general functions.

In all but a few cases, the globe-tension remains permanently lessened afterwards. In some, it returns more or less during a few days, but again subsides as the wound fully heals. In some, where it has long existed, or been extreme, it is not entirely relieved, but only much lessened; and here an additional iridectomy may or may not be required, according to the indications afforded by the state of vision. If this seems to be recovering, no further interference will be necessary; and, indeed, if the iridectomy have been properly performed in the first instance, it will very rarely have to be repeated. In at least three instances, I have known such a supplementary operation completely efficacious in reducing tension to the natural standard, when, from one cause or another, the effect of the original iridectomy had proved insufficient.—*British Medical Journal*, *Oct.* 11, 1862, *p.* 377.

45.—ON THE OPERATION FOR THE DIVISION OF THE CILIARY MUSCLE.

By Henry Hancock, Esq., Senior Surgeon to the Royal Westminster Ophthalmic and Charing Cross Hospitals.

During the three years which have elapsed since the operation for the division of the ciliary muscle was first introduced to the notice of the profession it has been employed in various affections of the eye. The diseases in which it has proved most successful have been kerotitis, sloughing of the cornea, staphyloma, dense opacity of the cornea (in some cases of several years' duration), and conical cornea; also in certain forms of amaurosis; in acute and chronic glaucoma, and in posterior staphyloma and myopia. Before, however, I enter upon the detail of these cases I would explain the grounds upon which I have proposed this operation; inasmuch as some gentlemen who have written upon the subject have very erroneous opinions on the matter, and attribute ideas to me which I by no means entertain.

Although considerable attention has been paid to the structure and uses of the ciliary muscle, no one has hitherto sufficiently insisted on the important influence which it exerts in disease upon the circulation and consequent nutrition of the eyeball. The experiments of Cramer, Helmholtz, and H. Müller,

whilst proving the value of this part in the "accommodation of the eye," show also that, in health, it possesses both elasticity and contractility; and whilst the experiments of Helmholtz demonstrate the influence which it exerts in the adaptation of the lens to the accommodation of the eye, we cannot overlook the influence which it must also exert over the cornea, sclerotica, choroid, and iris, in adapting them likewise, especially when its connexion with these coats of the eye is borne in mind. Heinrich Müller distinguishes two sets of muscular fibres in the cilary muscle: *external* or *radial*, springing from the inner wall of Schlem's canal, and passing outwards and backwards, to be inserted into both the sclerotic and choroid; and *internal* or *circular*, running parallel with the corneal margin, and situated principally in the antero-interior part of the muscle, near the insertion of the iris. As a whole, we find it closely connected with the line of junction between the cornea and sclerotica, the choroid and iris; and receiving the middle portion of the posterior elastic layer of the cornea, whilst the most anterior portion forms distinct columns, constituting the pillars of the iris (Bowman), or "ligamentum iridis pectinatum" (Huck). "It is continued with the iris, and is closely attached to the circular sinus of Schlem, connecting the iris at this point and constituting a bond of union between it and the ciliary processes. The retina likewise terminates in its ora serrata at the posterior edge of this muscle. The long and several of the anterior ciliary arteries pass through it, as well as many of the posterior ciliary arteries in their passage from the choroid to the iris; whilst the choroidal veins, having reached the ciliary muscle, turn with a sharp curve along it, and, uniting, form a nearly straight horizontal vessel, of considerable size, along its posterior edge. The ciliary nerves also run through it, ramifying freely throughout its substance." (Nunneley: "Organs of Vision," p. 168.) And although absorbents have not been demonstrated in this structure, it may fairly be inferred that this arises from their extreme minuteness, rather than from their non-existence.

From the above description we gather that the so called ciliary muscle is a body possessing in the natural state both elasticity and the power of contractility, exerting the power of accommodation of the eye to various foci, and permitting the transmission of bloodvessels, nerves, and, in all probability, of absorbents, through it, without interruption to their functions.

In a paper on Glaucoma (the Lancet, Jan. 26th, 1861), Mr. Nunneley writes—"Mr. Hancock believes the disease does not depend upon hypersecretion of the vitreous humour owing to disease of the choroid coat, but that it essentially depends upon continuous spasm of the ciliary muscle, which, according to

him, induces the hardness of the globe of the eye." Whilst Mr. Haynes Walton, in the last edition of his work on "Surgical Diseases of the Eye," observes—"It is not probable, I think, that such a muscle as the ciliary could contract with sufficient force to groove the hard and stony eyeball of glaucoma, still less likely is it that such spasm could be continuous."

I have never believed, nor have I ever stated, that glaucoma is caused by spasm of the ciliary muscle, whether persistent or temporary. I have stated that, in my opinion, the ophthalmoscopic and pathological appearances of the *bloodvessels* were greatly enhanced by, if not in some instances entirely due to, the obstruction of the circulation, caused by the undue and excessive constriction exerted on them by the spasmodic or *extreme contraction* of the ciliary muscle; but I have never as yet said anything about the ciliary muscle inducing hardness of the globe of the eye, nor of its contracting with sufficient force to groove the "hard and stony eyeball of glaucoma."

I believe that glaucoma is not caused by hypersecretion of the vitreous humour; but that it has its origin in some peculiar condition of the blood, considered by most ophthalmic surgeons as gouty or rheumatic—a view of the question most ably supported by Mr. Canton in his admirable papers "On Atrophy and Degeneration of the Arteries," and confirmed by the writings of Lawrence, Sichel, Mackenzie, Tyrrel, Bell, as well as by the dissections of Eble and Rosas; that the muscular fibres and blood-vessels become implicated, as sooner or later do the heart and bloodvessels in that disease; that the ciliary muscle, losing its elasticity and contractility, is converted into a rigid, unyielding cord. The eye is consequently deprived of its accommodating power, and the bloodvessels—nerves, and doubtless the absorbents, from their peculiar arrangements with reference to this muscle—being compressed, the circulation through these vessels is impeded; their coats, already weakened by the exciting disease, yield, form aneurismal pouches, give way, or become varicose. The parts supplied by these vessels, nerves, &c., are deprived of their nourishment; whilst the intraocular effusion or hypersecretion takes place subsequently to, and resulting from, these mordid changes.

In the case which I related in the Lancet for 1859, the attack came on so suddenly after exposure to a strong light without any premonitory symptoms, and was attended with so much acute pain, that I have no doubt the constriction, in this case at all events, resulted from spasmodic contraction, perpetuated by the intensity and persistence of the disease. In other instances, however, when the disease progresses more slowly and insidiously, where there is gradual and progessive degeneration of structure, I can readily understand that the ciliary muscle

should become implicated and converted into a rigid, unyielding, inelastic ring, from that cause rather than spasmodic contraction; but although I firmly believe that these two conditions do exist, I am bound to admit that I cannot adduce any dissections in support of this opinion, as in no single instance has the operation for the division of the ciliary muscle been followed by any symptoms which would render extirpation of the eyeball justifiable.

Mr. Hayes Walton seems to think that the hardness of the eyeball precedes the constriction of the muscle, and that I believe the muscle by its contraction actually draws in the distended coats forming the sulcus met with in glaucoma and other diseases of the eye. On the contrary, I believe the contraction, whethers pasmodic or otherwise, precedes the hardness; and that whatever influence the muscle exerts in these cases upon the coats of the eye is of a passive rather than of an active nature; that, in other words, it does not "groove" and draw the coats of the eye in, but that it prevents the coats of the eye expanding at this point; hence a given quantity of fluid effused within the eyeball would render it more intense than where such condition of the ciliary muscle does not obtain, and this may easily be verified by the following experiment:—I took a piece of the intestine of an ox, and having placed an elastic india-rubber ring around it, I forced in as much water as it would hold by means of a bladder syringe. Of course, as the water was forced in, the ring expanded, and the intestine became uniformly tense, and by measurement, I found the quantity of fluid thrown in was forty-two ounces. I then removed the india-rubber ring, and substituted a ring of string of the same size as the india-rubber ring when not expanded, and I again injected as much water as I could; but as the string was inelastic, the gut was constricted at the spot encircled by it, whilst the quantity of fluid measured only thirty-three ounces, so that the loss of elasticity diminished its capacity by nine ounces.

Whilst the division of the ciliary muscle, by doing away with constriction, diminishes the tension of the eyeball and the consequent intraocular pressure, it appears to me that the most important result of the operation is its effects upon the blood-vessels, nerves, and absorbents, in removing the obstruction to the circulation and increasing nutrition; whilst a result of almost equal importance is the recovery of the accommodating power of the eye. It is, however, objected that these cannot by any possibility be effected by the operation which I recommend.

Mr. Nunneley observes (the Lancet, Jan. 26th, 1861):—"It cannot, however, be at all difficult to show that neither the theory nor the practice as applicable to the theory of Mr. Han-

cock can possibly be true. . . . Supposing the ciliary muscle were really hypertrophied and in a state of tonic spasm, how could it induce hardness of the whole globe of the eye, flattening of the cornea, and much intraocular pressure? . . . The fibres are not circular, but straight, and not more than one-seventh of an inch long. They can have no action whatever upon the sclerotic coat, to which they are not attached posteriorly. They cannot therefore render it hard." And he adds: "But even were this theory of compression by the ciliary muscles as true as it appears untenable, how could a simple puncture in the direction of its fibres interfere with the entire circle of its fibres. A broad transverse incision in the direction of the corneal curve, by dividing the fibres, might act powerfully in proportion to the number of fibres divided; but that a simple momentary separation from each other of two or more adjoining parallel fibres, without any division of their structure (for such must be the effect of a fine, sharp, thin knife), could permanently arrest strong spasmodic action in an entire muscle spread over a large circle it is impossible to conceive."

It is somewhat surprising that a gentleman professing to be an authority on the minute anatomy of the eyeball should so decidedly commit himself to the assertion, that the fibres of the ciliary muscle are not "circular," but "straight." H. Müller has shown that the ciliary muscle consists partly of straight and partly of circular fibres, and it is difficult to understand what Mr. Nunneley means when he talks of the ciliary muscle as a set of unconnected straight fibres, not more than the seventh of an inch long, and then immediately describes it as "an entire muscle spread over a large circle." It will readily be granted that both these conditions cannot obtain. If it is merely an arrangement of unconnected radiating fibres, it cannot be an entire muscle; if, on the other hand, it is an entire muscle, then the fibres must be connected, in which case his objection, that in my operation the effect of the incision by "the fine, sharp, thin knife must necessarily be limited to a simple momentary separation from each other of two or more adjoining parallel fibres without any division of their structure," is of no value. But perhaps Mr. Nunneley will inform us how (even if the fibres are unconnected) it is possible so to introduce a fine, sharp, thin knife in the course of these fibres as to cause a simple momentary separation of *more than two* adjoining fibres, without at the same time dividing structure; and, also, how it is possible to make an oblique incision, of an eighth of an inch long, across the ciliary muscle (as in my operation), without at the same time cutting through the muscular fibres, even were their arrangement such as described by Mr. Nunneley.

Mr. Nunneley's assertion, moreover, that the fibres of the

ciliary muscle are not attached to the sclerotic, is entirely disproved by the investigations of H. Müller, who has traced them from the inner wall of Schlem's canal to their insertion into both sclerotic and choroid. He forgets that a minute portion of the ciliary muscle teased out upon the object-glass of a microscope does not represent that muscle as it exists in the natural state; and he forgets, also, the following description of the ciliary muscle given at p. 175 of his own work on the "Organs of Vision," published in the year 1858:—"If the sclerotic be divided about the third of an inch from the cornea, and the portion with the cornea be carefully detached, we find a whitish-grey circle, about $\frac{4}{30}$ of an inch broad, extending from the junction of the sclerotic and cornea backwards upon the choroid. *It is always a circular belt* even in these animals, &c. *This substance* has received various names, as ciliary circle or ring, ciliary ligament, ciliary ganglion, and *ciliary muscle*, acording to the notions which have been entertained of its structure and functions." It is this whitish-grey circle, this circular belt, this ciliary circle or ring, this ciliary ligament, ganglion, or muscle, which is cut through in the operation which I have proposed. I am ready to admit that if the part did consist merely of a collection of unconnected fibres, the introduction of a knife betwen, and in the course of, any two fibres would be useless; but where a circle of radiating fibres—I care not how large that circle may be—is rendered a connected whole by circular fibres and other uniting tissue, the solution of that whole by the division of these circular fibres and connecting tissue, even though the radiating muscular fibres are left untouched, must effect a very important influence over the entire circle, especially where from preceding disease that circle has been deprived of its elasticity, and is consequently constricting the parts passing through it, as in the case of the vessels, nerves, &c., passing through the ciliary muscle.

Whilst, as we have seen, some gentlemen have endeavoured to depreciate the value of this operation, others have assumed to themselves the credit of originality by altering the direction of the incision. I would submit that these proceedings savour in no slight degree of plagiarism, since in all the principle is the same—the division of the ciliary muscle; and whether this object is attained by making the cut obliquely, as I have recommended, or straight, or along the curve of the cornea, it can make but little difference, so long as the muscle is divided and the transparent cornea is not invaded. In the latter case the incision is mostly followed by effusion of blood into the anterior chamber and protrusion of the iris through the wound; and although the blood is usually absorbed in two or three days, the protrusion of the iris causes great and unnecessary pain. These

accidents, however, should always be regarded as the fault of the *operator*, and not of the *operation.—Lancet, August 2 and 9, 1862, pp. 112, 138.*

46.—FARADISATION IN OPACITIES OF THE CORNEA.

By Dr. Julius Althaus, London.

In *opacities of the cornea*, especially such as defy other therapeutical proceedings, Faradisation is a valuable remedy. For this affection Galvanisation must not be used, because of its peculiar action upon the retina, and which might prove dangerous to the function of this membrane. The induced current, on the contrary, which only acts upon the retina if it possesses a very high tension, and even then not nearly so much as the continuous current, may be quite safely used in the treatment of diseases of the eye. A moist conductor connected with the positive pole should placed in the hand of the patient, while the negative pole is applied to the closed eye. In order to discover the relative value of the different modes of treating opacities of the cornea, Dr. A. Von Graefe used in patients in whom both eyes were similarly affected, the induced current on the one, and laudanum, nitrate of silver, &c., on the other, with the result that the cure by Faradisation was much more rapid than by the other means. Opacities of the cornea invariably require a somewhat protracted treatment, viz., from one to three months, according to the severity of the affection. If Faradisation is judiciously performed, and the treatment persevered in for a sufficient time, a successful result may be confidently expected. The cure is more rapid if the operations succeed each other at short intervals, viz., every other day, or four times a-week, a quarter of an hour each time.

If the zinc pole of a voltaic pile is made to act upon the lens of the eye, this is rendered opaque, and if the copper pole is afterwards directed to it, the opacity again disappears. This fact induced M. Crussel to recommend galvanisation for the cure of *cataract;* but since, in the few cases which have thus been treated, inflammation of the choroidea, iris, and retina, and destruction of the eyeball have followed the operation, it would be unjustifiable to resort to it.—*Med. Times and Gazette, Sept. 13, 1862, p. 271.*

47.—ON THE TREATMENT OF CATARACT BY REPEATED EVACUATION OF THE AQUEOUS HUMOUR.

By Dr. Sperino, of Turin.

A good deal of attention having of late been excited by the statement that Dr. Sperino had met with great success in the treatment of cataract by repeated evacuation of the aqueous

humour, Dr. De Pietra Santa went to Turin to witness his practice in the ophthalmological hospital of that city. He was much struck with the cases which he saw there, and at his request, Dr. Sperino furnished him with some account of his procedure in anticipation of a complete work which he is preparing on the subject, and in which he will go fully into the question as to which forms of cataract are best suited to this mode of treatment. M. Sperino had long derived great advantage from the repeated evacuation of the aqueous humour in cases of iritis, interlamellar keratitis, severe hypopion, staphyloma of the sclerotica, congestion of the choroïd and retina (even when attended with exudations), opacities of the vitreous humour, and in pseudo-membranous deposits in front of the lens. Even in some desperate cases of glaucoma, attended with commencing cataract, this treatment, useless as regards the lost sight, was of use, a diminution of the opacity of the lens following the evacuation. It was in September last, however, that M. Sperino seems to have first employed this as a direct means for the cure of cataract. A lady, aged 81, had complete cataract in her right eye, and one which was much advanced in the left. The great age of the patient, her liability to cerebral congestion, and the contracted condition of the anterior chamber, made him little desirous of performing an operation, but he determined to puncture the cornea, and evacuate the aqueous humour at intervals of twenty-four and forty-eight hours. The improvement was progressive, and in two months the opacity had disappeared, the patient being able to read without glasses Nos. 3 and 4 of Jaeger's scale, at a distance of from ten to twelve centimetres, and even thread a needle. The improvement thus far has continued permanent. After each evacuation, which was made through the same aperture in the cornea, ice was applied to the eye for some hours. M. Sperino observes that it was fortunate that this, his first essay, happened to be made in that variety of cataract, which his subsequent experience has shown him is precisely the one which yields best to this mode of treatment. He has since practised it with success in various cases, some of which have been witnessed by M. de Pietra-Santa. He employs Guerin's knife for subcutaneous myotomy, introducing it at the extreme edge of the cornea, generally on the outer side. This does not evacuate the humour, which is done by means of a small silver probe having a blunt extremity, and which serves also, without preliminary incision, for future evacuations, the point of puncture being easily found again, and no inconvenience resulting from its being reopened. This is done daily, leaving a day now and then for rest. Iced compresses are applied for a few hours afterwards, and the patient is well fed, and enjoined to take exercise in the open air.

Mr. J. G. Hildige gives the following account of a case in which he put in practice the method proposed by Professor Sperino. Mrs. C., aged 45, had soft cataract in both eyes. That in the right eye was perfect; the internal portion of the retina was insensible to light; the other tissues of the eyeball were tolerably healthy. The vision of the right eye was still good enough to permit her to go about alone, and to see large objects. The general health was pretty good. Mr. Hildige punctured the left eye with a broad-bladed needle at the external junction of the cornea with the sclerotic, and allowed the aqueous humour to escape. On the following day he repeated the puncture, introducing the needle at the inferior part of the cornea. The eye was slightly inflamed on the third day, the pupil contracted, and other symptoms of irritation were present; so that he was obliged to allow two or three days to intervene before resuming the treatment. He repeated the operation eleven times, allowing one, two, or three days to intervene according to the amount of irritation present, with the following result. The cornea had become slightly conical, so that the anterior chamber was much deeper than in the normal condition; the iris was of a much deeper tinge than that of the other eye; pupil contracted; and small dots of pigment, detached in all probability from the posterior part of the iris, were deposited on the anterior capsule of the lens. On dilating the pupil with atropine, one side of it was observed to be adherent, and masses of pigment were attached all round its circumference, protruding as it were from the posterior surface of the iris. The lens was in every respect in precisely the same condition as it was previously to the commencement of the treatment, presenting the same degree of opacity, without the slightest symptom of absorption having taken place in any portion of it. The effect of the frequent paracentesis was certainly to produce hypersecretion of the aqueous humour; this, however, instead of causing absorption of the cataract, produced a more or less staphylomatous condition of the cornea, the anterior chamber not being capacious enough to contain the quantity of aqueous humour secreted.—*Dublin Med. Press.—British and Foreign Medico-Chirurgical Review, July*, 1862, *and London Medical Review, Sept.* 1862, *pp.* 265, 162.

48.—OPERATION FOR THE SOLUTION OF CATARACT, COMMONLY CALLED THE NEEDLE-OPERATION.

By Haynes Walton, Esq., Surgeon to the Central London Ophthalmic Hospital, and to St. Mary's.

[In cases of soft cataract in which alone it is applicable, the

operation of solution accomplishes all that is required, and in fact scarcely leaves more to be desired. It is well to invariably operate through the cornea.]

The thing above all others to be attended to—what I call the great principle in "solution"—is to procure absorption of the cataract in its natural position—*in situ*. So immediately does this concern success, that, should I impress the rule on you, much will be gained by these remarks, if nothing else be remembered. The less the lenticular matter is displaced, the less subject is the eye to irritation, and therefore to permanent injury. The less, too, that the lens-capsule is torn in the early stage of the treatment, the less likely is it to contract adhesions to the iris, and therefore the more easy to be disposed of afterwards, should it obscure the pupil. The highest perfection, the best success, is to be got only with a central pupil free from any adhesions, and in an eye that has not been inflamed. I am never quite satisfied except the pupil be unaffected.

At a first operation, therefore, I merely break the centre of the capsule, and penetrate the cataract sufficiently to admit the aqueous humour. Do not use the needle as a lever, making the cornea the fulcrum; for most assuredly, as the cataract is then the point of resistance, it will be twisted, and, with the slightest movement in the capsule, dislocation is almost sure to occur. You should pick at the spot you select, as if the cataract were outside the eye; and not carry the needle too deeply, nor move it about too freely. Sometimes, when the vitreous humour is diseased, the cataract and the capsule move on it, and it may not be possible to puncture even the capsule without producing this effect. It is only very lately that I made out the cause of the movement, which puzzled me for a long time. Another reason why the needle should not be used freely at first is, that as the lens-tissue swells very much on being considerably broken, the capsule may be pushed against the iris, when adhesion is inevitable. These parts always adhere when they touch in the course of an operation. Dilatation of the pupil may often prevent the contact; indeed, the artificial dilatation should be kept up till the cataract is absorbed, for this reason, and further, because that any portion of the cataract becoming separated may the more readily fall into the anterior chamber, where it is not so likely to produce irritation as in the posterior. A drop or two of a solution of atropine, of the strength of two grains to the ounce of water, applied on the conjunctiva on alternate days, or even every third day, will suffice. The frequent use is unattended with any disadvantage, except very exceptionally indeed, perhaps once in a hundred times, when it may irritate the surface of the eye. In such cases, the solution must be weakened, and used very much less often.

The repetition of the operation under some weeks is positively unnecessary, and often hurtful. So long as lenticular matter is exposed—a fact that can be verified by viewing the eye in profile—nothing more is desirable. The falling back of the iris, by which it becomes concave, is a sure indication that there has been absorption. The same is indicated by the surface of the cataract receding.

But absorption goes on even if there be no part of the cataract exposed, when the capsule-wound has closed. It is in ignorance of this, I suspect, that so many unnecessary operations are executed. It is a well recognised fact that, while an undisturbed cataract will exist for twenty, thirty, or more years, even although the lens-tissue has degenerated to fluidity, one that is punctured is sure to be absorbed in time; also that, without exception, whenever the lens is wounded by accident, the cataract which is produced, called traumatic, is always absorbed, time only being required to effect it.

After an operation, therefore, absorption never ceases. But it can be very materially facilitated by keeping the cataract exposed; as also by breaking up its substance. The great nicety of the operation is to secure the greatest absorbing influence with the fewest number of operations, and the least disturbance to the eye. Watch, therefore, your cases; and so long as the removal of the cataract is rapid, delay to act further. While some cases may demand three or four operations, with a large number two will suffice, and in some instances one. I often hear it said, in advocacy of frequently operating, that time is an object; I say that it is by no means certain that such a course ever saves time, even when the eye does not seem to suffer by it; that the ill effects are very common, and generally leave some permanent result. It should be remembered that sight as perfect as it is possible to be got is the object to be obtained, and not mere time, which is certainly less valuable to a blind person than any one else. But the principle is so very evident that I need say no more.

The necessity for the repetition of an operation must, as a rule, depend on the state of the cataract. The more the degeneration of the lens-tissue, the fewer they need be. When the cataract is fluid, one will suffice; and from two to three are generally enough for any case. On the last occasion, the needle may be freely applied, and any thin scale of the cataract that remains freely broken up. Any portion of it that may fall into the chambers of the eye will not irritate.

It may be requisite to modify the operation for solution, according to the escape of the cataract, or portions of it, from the capsule when operating; and I will give you some practical hints for your guidance.

When there is a fluid cataract, a fact soon determined by the opaque liquor rendering turbid the aqueous humour, the cornea should be incised with a cataract-knife, or an iris-knife, and as much of the fluid as possible evacuated. The liquid cataract-material in its escape into the chambers of the eye often produces vomiting, sometimes severe, and for days. The removal of it prevents this. Should it happen, when the greater portion of the cataract has become softened, that the anterior chamber becomes almost occupied by it, I also recommend the extraction of as much as may so be removed. A small portion only should be left undisturbed. Should the nucleus of the cataract be displaced, I advocate its removal.

The case is altogether different when any soft part of the cataract escapes from the capsule several days after the operation; the chances are greatly against the eye suffering. Absorption generally goes on as quietly as could be wished; except only if severe irritation be excited, should you interfere, when the extraction of the greater part—as much, in fact, as can be got away—may save the eye. The nucleus is more likely to irritate.

All that I have said applies to the removal by absorption of the cataract only. The pupil may yet be obscured by capsule, which would need to be torn or extracted to cause it to contract; for capsule is never absorbed.

I am forced to allude to the extraction of soft cataract, as it has of late been advocated in Germany, and copied in England. But there is no novelty in the matter. It was proposed and practised by Mr. Gibson in 1811, because of the bad results of the operation for absorption as then performed. It was fairly tried by several surgeons, but abandoned, as the needle operation was better understood and more successfully practised. You will hear it spoken of under the new term of "linear extraction"—a very inappropriate name, which is intended to express that the cataract is removed through a small corneal wound. As compared with solution, it is dangerous almost beyond comparison. A considerable portion of the cataract must always be left behind; and this must be, if even a large corneal wound were made; so that besides the immediate risk attaching to the extraction, absorption must be relied on to dispel what remains. The pupil is frequently displaced, and vision necessarily thereby, in some degree, rendered imperfect. The capsule of the lens almost always becomes adherent to the pupil, which is so much the more difficult to be cleared of it, in proportion to the extent of the adhesion. What I have seen of it, obliges me to condemn it.—*British Medical Journal, June* 7, 1862, *p.* 598.

49.—ON OPIUM IN OPHTHALMIC DISEASES.

By W. White Cooper, Esq., Surgeon-Oculist to the Queen, and Ophthalmic Surgeon to St. Mary's Hospital.

A weak solution of the extract of opium—one grain to the ounce—has a most beneficial influence on many cases of conjunctivitis. I have seen instances in which the inflammation yielded to this, having resisted every other application. The wine of opium dropped into the eye is a well-known remedy, but very painful, the pain being caused by the spirit. Mr. Squire informs me that the new Pharmacopœia will contain a fluid extract of opium, in which the proportion of spirit is only two ounces to the pint. This will probably supersede the vinum opii, as I believe the benefit is mainly due to the opium, and that the aromatics and the strong wine can be alike dispensed with.

Cases are occasionally met with in which opium excites rather than allays irritation. I prescribed a collyrium of six grains of extract of opium in six ounces of rose-water for a lady who was suffering from slight conjunctivitis. It greatly aggravated the inflammation, and the patient stated that, with her, opium invariably acted as a powerful irritant.

A popular collyrium is a combination of diluted Goulard water with vinum opii; this is open to the grave objection that an insoluble meconate of lead is formed, which may become impacted in the cornea, leaving an indelible mark if there be abrasion or ulceration present. Of this I have seen many examples. The left eye of an artist of my acquaintance has been rendered useless from childhood by a patch of such deposit in the centre of the cornea. As a rule, it is safest not to employ lead, or other turbid lotions, in strumous or exanthematous affections of the eye, these being frequently attended with ulceration of the cornea. Lotions of zinc and alum, and the solutions of vegetable extracts, as opium, poppy, or belladonna, should be filtered, and if the latter are intended to be kept, even for a few days, a little glycerine should be added to prevent the formation of acetic acid by the change the vegetable matter undergoes, which also gives rise to mouldiness.—*Lancet, June* 28, 1862, *p.* 684.

50.—OPHTHALMIC OINTMENTS.

By W. White Cooper, Esq., Surgeon-Oculist to the Queen.

For some time past my attention has been directed to obtaining a basis for ophthalmic ointments which shall neither become rancid nor irritating to the eye. The material which possesses these qualifications in the highest degree appears to be the butter

obtained from the *Theobroma cacao nut*, from which chocolate is made. This nut contains about four-tenths of its weight of a fixed oil of the consistence of firm tallow; having a rather agreeable and characteristic smell, and little, if any, tendency to become rancid. The butter is obtained by roasting the nuts, bruising them, and then submitting them to strong pressure between heated metallic plates. Though very firm, it has the property of becoming fluid at a low temperature, and when applied to the skin feels cool and pleasant. I have reason to believe that the concrete oil of the cocoa nut *(Cocos nucifera)* is sometimes mistaken for the butter of the *Theobroma*, but it is deficient in the characteristic properties mentioned, being soft, often rancid, and used chiefly for making candles and soap.

I have had the cacao butter mixed with the nitric oxide of mercury, then moulded into pencils, whereby it can be applied to the edge of the eyelid, or any other point, with great facility. The firmness of the butter renders it an admirable material for suppositories, and its cooling character adds to its value as an application to hemorrhoids, &c. Should objection be made to its firmness as an ophthalmic preparation, it can be mixed with olive oil, the best proportion being two parts of the cacao butter to three of oil; I mention this, as patients occasionally find fault with the stiffness of the pure butter.

Benzoated lard ranks next to cacao butter, and the fat obtained from the omentum of the calf is a sweet and pure material, though it does not keep so long as either of the other preparations.—*Lancet*, *June* 28, 1862, *p.* 683.

51.—ON BELLADONNA AND ATROPINE.

By W. White Cooper, Esq., Surgeon-Oculist to the Queen.

Belladonna.—When extract of belladonna has been prescribed as an external application, patients have occasionally complained to me of its becoming so stiff and hard that they could not use it; others have found it become mouldy. The tendency to hardness is easily obviated by having the extract rubbed down with glycerine to the required consistence. The mouldiness depends on the retention of albumen in the extract, and can be prevented by evaporating the juice at a temperature below that at which coagulation of the albumen takes place. In the extensive laboratory of Messrs. Bell and Co., the extracts are made by evaporating the juices in shallow pans heated with water to a temperature not exceeding 120°. Such extracts keep perfectly well for years without becoming mouldy.

In an important discussion which took place at the Pharmaceutical Society during the past session, on a valuable paper by Mr. Squire on "Medical Extracts," many important facts were

elicited, not the least being, that to obtain a really good and energetic extract of belladonna, it is necessary to use the young stalks, flowers, and fruit, not the leaves only, as has been directed by the London Pharmacopœia for the last fifty years. Mr. Squire sent to me and also to others, two solutions of the extract of belladonna, merely lettering the bottles A and B. The solution of the extract made from the soft parts generally, was decidedly more energetic in its action on the eye than the solution of extract made from the leaves only; it dilated the pupil more quickly, and for a longer period. I am informed that all the gentlemen who tested these preparations arrived at the same conclusion with myself upon this point.

Daily observation shows me that disturbance of sight, often to an inconvenient extent, is caused by the application of belladonna to the eye, and I have been surprised to find the contrary stated in that deservedly esteemed work, Professor Christison's Dispensatory. "A little of the extract (says the Professor) rubbed with the wet finger round the eyelids, or a solution dropped into the eye, causes in a few hours an extraordinary dilatation of the pupil, so that the iris seems at times to disappear, as it were, in a great measure. The effect becomes decided in the course of three or four hours, and continues for eighteen hours afterwards. It is unattended with any obscurity of vision. But when dilatation is brought on by the internal use of the drug, vision is at the same time much impaired."

That the effect on the sight is exceedingly embarrassing I can testify by my own personal experience, having on two occasions accidentally dilated one of my own pupils by rubbing the eye whilst using belladonna; indeed so much inconvenience did it cause me, and so much was the sight disturbed, that I found it necessary to postpone until the following day (when the effects had passed off) an operation for extraction of cataract which was to have been performed. A preparation of belladonna is recommended by some perfumers "for imparting lustre to the eyes," and is more extensively used than might be supposed. Ladies, however, should be warned that it is a practice fraught with danger, and deserving vehement discouragement. As the "lustre" is obtained by dilatation of the pupil, and is specially designed for evening parties in brilliantly lighted rooms, the flood of glare thrown upon the defenceless retina deprived of the safeguard of the iris, is seriously injurious to the healthy eye. Such is not the case when cataract exists; a large portion of the rays are stopped by the cataract, and the amount admitted to the retina is not sufficient to be hurtful. Where the nucleus of the lens is opaque, the periphery clearer, great aid to sight and much comfort are afforded by judicious dilatation of the pupil.

Atropine.—For inunction over the brow I prefer a solution of atropine in glycerine to the use of extract of belladonna, it being efficacious, cleanly, of a definite strength, and free from the nauseous smell of the drug. Mr. Squire informs me, that in a liniment, a strong alcoholic tincture of belladonna is fully as efficacious as the extract, and far less disagreeable in use.

When atropine was first introduced into ophthalmic practice, it was customary to place in the eye at least a full drop of its solution to dilate the pupil for ordinary examination. This was found to be attended with the inconvenience of prolonging the dilatation during many days; I have known it last a fortnight, and with our present knowledge of its power atropine is used much more sparingly. My own practice is to lightly touch the lining membrane of the lower eyelid with a brush slightly moistened with a solution of the strength of two grains to the ounce. When the eye appears to be susceptible, the application of a brush which has been dipped in the solution and dried, is quite sufficient.

Mr. Streatfeild has suggested a neat and convenient mode of making the application, by means of a modicum of paper, which, having been saturated with a solution of atropine and dried, is placed on the inside of the lid for a short time. The paper has been prepared by Mr. Squire.

The solution of atropine in water has a great tendency to become turbid. To prevent this, spirit is often added, but has the disadvantage of irritating the eye. Glycerine is preferable: a few drops of glycerine added to an ounce of the solution of sulphate of atropine in water is scarcely felt when applied to the conjunctiva, and perfectly preserves the transparency of the solution. It is important that the glycerine should be *pure*, the characteristics being, specific gravity not under 150°, intensely sweet taste, and total absence of colour and smell.—*Lancet*, *June* 28, 1862, *p.* 683.

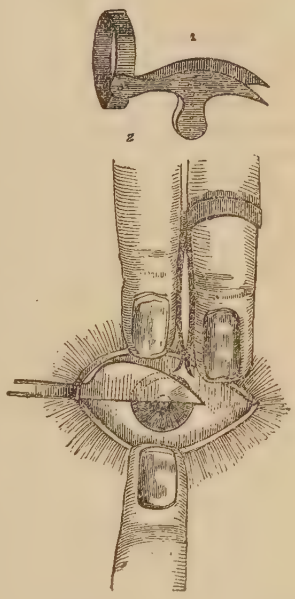
52.—ON A NEW FORCEPS FOR USE IN OPHTHALMIC SURGERY.

By Thomas Nunneley, Esq., Surgeon to the Leeds Eye and Ear Infirmary.

[Mr. France some four years ago (see *Retrospect*, vol. xxxviii., p. 241) introduced the use of a pair of ordinary sharp-toothed forceps for steadying the eye during operations on that body. The forceps were to be held by an assistant, whose hand rested on the cheek of the patient. Mr. Nunneley considers, however, that any means to be really effective must be entirely under the control of the operator himself, and yet so arranged as not to occupy a hand,

or even to interfere much with the delicate motion of the fingers.]

With this object I have constructed a pair of forceps, the form of which, and the mode of using, will be better understood from examining the accompanying sketches, for which I am indebted to my friend and colleague Mr. H. M. Atkinson.



The forceps are intended to be held between the first and second fingers. To some slight extent they must vary in length with the length of the operator's hand. For my hand they are an inch and a half long. This will answer for most persons ; but those whose fingers are very long or short may require them to be made one-eighth of an inch longer or shorter. They should reach from the upper third of the middle phalanx to the tip of the fingers, with which the points should be *exactly even*, so that when the fingers, in the ordinary way in extraction of the lens, reach over the margin of the lid, and rest upon the ball, the points of the forceps should be able to grip the morsel of conjunctiva and sub-conjunctival tissue which then lies between their points. If the forceps be too long, they would press too much upon the middle joint of the finger, so as to interfere with its motions, or the points would project too much and injure the ball. If, on the contrary, they are too short, they cannot be held steadily, or they cannot seize the tissue, and so would become useless. They are slightly curved in their length to correspond with the bend in the distal joints of the two fingers when these rest upon the eyeball. (If preferred the blades might be straight, and the ring be set somewhat obliquely to them by which the same position would be secured.) On the end is fixed transversely at right angles, a light ring of watch spring sufficiently large to just pass without force upon the middle phalanx of the second finger, by which the forceps are held in position. The ring should be an open one, so as to accommodate

itself to the finger without any great pressure. On the outer side of the forceps is a slightly curved and roughened clip upon which the forefinger rests, and thus steadies and guides them. They should be light, so as not to require much force to bring the blades together, or the free motions of the fingers will be impaired in exercising it, and yet they must be sufficiently strong not to spring when they are brought together, or the points will not hold; the blades being slightly bowed from each other at their middle part will assist this, and allow of the tips of the two fingers being somewhat separated from each other as is usual when they touch the eyeball as the section of the cornea is made. Their points should be small, but firm, and terminate with sharp short teeth set at right angles, so as to fit well into each other.

Those who are ambidextrous should have two pairs of forceps made—one for the right, the other for the left hand, with the ring and the clip reversed; for though a single pair may answer, the ring being placed upon the long or forefinger as the left or right hand is employed for steadying the eye, it will, I think, be found in practice more convenient to place the ring upon the long than upon the forefinger; at least I find it so.

It is necessary, as Mr. France has remarked, to seize the sub-conjunctival tissue, or the hold will not be sufficiently firm, but as the fingers of the operator assist, a much slighter hold of the tissue will be required than where the forceps are held by the hand of another. As he has also remarked, the inconvenience thereby occasioned is so trivial and momentary, as to be of no importance, for neither spasm nor inflammation, which have been alleged to have been occasioned by mechanical restraints, are ever induced by so seizing the tissues.

Such forceps will, perhaps, be even of more value in examinations of the eyeball in nervous, irritable persons, and in timid children, where there is photophobia, and especially in the removal of a foreign body imbedded in the cornea, than in cataract extraction or operations upon the iris; for, as I have said, in these latter operations the necessity for any means of fixing the eyeball, other than the operator's fingers, is rather the exception than the rule, whereas every surgeon must not unfrequently have felt the urgent want of some effectual method for steadying the eyeball when extracting small particles from the cornea, particularly when they are buried in its laminæ or have been in it some little time, and the eye has become inflamed, or the cornea soft and tender.

P.S.—Since the above sketches were taken, I have had made a pair of forceps with the blades crossing each other, as in the bull-dog forceps, by which they become *self-holding*; *thus the fingers*

are left as wholly free as if no forceps were employed, and all possible objection to their use is removed, as they do not in any way interfere with the most delicate manipulation of the operator.—*Lancet, July* 5, 1862, *p.* 7.

53.—ON A NEW METHOD OF REMOVING THE EYEBALL.

By James Keene, Esq., Melbourne.

The operation for the removal of the eyeball was at one time seldom or never resorted to, unless tumours of a malignant character were supposed to exist; and when, of course, it was most important that the whole contents of the orbit should be carefully excised in order to avoid leaving behind any portion of diseased structure which might be the means of regenerating the morbid action. The tumour having converted the eye into a large shapeless mass, projecting often beyond its socket, required an operation of some severity for its ablation. But, of late years, since it has become the practice to remove the eye where no cancer exists, and where the loss of vision is attributable to inflammatory action, the object has been to prevent sympathetic destruction of the opposite organ. In operations of this nature, which are becoming more frequent as our knowledge of pathology advances, it is not essential that the entire contents of the orbit should be excised; on the contrary, it is desirable that all the healthy structures should remain, as they afford a useful stump for the adaptation of an artificial eye.

In these cases it is now customary to resort to the operation devised by Bonnet, which, I need hardly say, consists in making a circular incision through the conjunctiva, and by means of a strabismus hook drawing each muscle through the aperture, and then dividing it. Several modifications of this process have been adopted by different operators, but it has always been lengthy and tedious.

To accelerate matters I suggested the adaptation of a cutting edge to the hook, which, being pushed onwards, after passing under the muscle, divided it without having recourse to scissors. This seemed an improvement, but not all that was desired. I subsequently devised and put into practice the following operation, which, from its simplicity and effectiveness, I have much pleasure in recommending to the notice of the Profession:—

The subject having been placed in the recumbent position, I introduced the spring speculum, and, standing at the head of the patient, passed a silk thread through the eye, as in the old operation. Holding this silk in the left hand, and making

traction upon it, I punctured the tunics of the eyeball, at a point about a quarter of an inch from the margin of the cornea, with a pair of sharp-pointed curved scissors held in the right hand. The scissors were then passed round the whole circumference of the organ a little behind the insertion of its muscles, the instrument in its passage severing them with the underlying sclerotic. The tendinous insertion of the muscles was thus removed with the anterior half of the eye, while the posterior segment was left attached to the orbit by the optic and ciliary nerves and vessels. To complete the extraction, I seized the edge of the remaining sclerotic with a pair of ordinary dissecting forceps, and, passing the scissors to the back of the eye, readily severed its attachments.

A description of this operation, which I believe to be original, appeared a short time ago in the Australian Medical Journal, since which I have had the opportunity of practically demonstrating its value in the presence of several members of the Profession, all of whom concur in its merits for celerity and effectiveness, although some objections were taken on the ground that the necessary division of the eye damaged its value for subsequent pathological study. This, however, it is submitted, is not a material objection, the primary aim being the effective extraction of the eyeball.—*Med. Times and Gazette, Sept.* 13, 1862, *p.* 273.

54.—TREATMENT OF CHRONIC OBSTRUCTION OF THE LACHRYMAL DUCT.

By William Oliver Chalk, Esq.

[A short time since Mr. White Cooper made some remarks on the treatment of chronic obstruction of the lachrymal duct, by pressure on the sac with a instrument constructed for him by Mr. Bigg, of Leicester-square. During the last two or three years the writer has been in the habit of using, at the Marylebone Eye Institution, an instrument similar in principle, and devised for a like purpose.]

It consists of a piece of watch-spring, rather more than one-eighth of an inch in width, and of sufficient length to pass over the forehead to the back of the head. A piece of gutta percha is attached to either end, the one small and moulded when in a plastic state, to the parietes of the emptied sac, the other larger and spread out at the back of the head, to which a narrow riband is fastened that passes round the forehead, and, when tied at the side of the head, keeps the spring *in situ*, and secures the requisite amount of pressure. Latterly, however, I have modified this plan, using only a short spring, fastened by means of a

small piece of gutta percha to the riband that goes round the forehead and is tied at the back of the head, and again secured by two other pieces of riband sewn to the sides thereof, and tied at the top of the head. In fitting the spring, care must be taken to curve the ends a little outwards before moulding the gutta percha thereto, otherwise they will penetrate it and abrade the skin. This is easily done by exposing them to a red heat in the flame of a spirit lamp, and whilst in this state making the requisite curve with a pair of pliers.

Many years since, at the time I was surgeon to the Royal Sea Bathing Infirmary, and before I had devised the instrument I have described, I adopted the plan of pressure on the lachrymal sac by compresses of lint kept in position by straps of adhesive plaster; and though much nicety was required in obtaining the requisite amount of pressure, yet the treatment was attended in many instances with the happiest results; for this reason it is I venture to offer some remarks in addition to those of Mr. W. White Cooper, on the efficacy of a mode of treatment confirmed by long experience, and which I believed, until I had read his observations, was peculiar to myself, or at least not generally recognised in surgical practice.

This gentleman, it appears, regards pressure merely as an "auxiliary" in cases of obstructed duct without fistulous opening; whereas I first resorted to the practice in those intractable scrofulous affections attended with more or less ulceration of the soft parts, regarding it as the best and only means of cure.

It cannot be denied, however, that Mr. Bowman's operation of slitting the canaliculus, and passing a large probe into the duct, is productive of good results. Such is the plan now pursued by my colleague, Mr. Obré, whilst at the same time he bears willing testimony to the success of my own method of treatment. That there are certain inconveniences consequent on dividing the canaliculus, such as those noticed by Mr. W. Cooper, must be admitted. The principal objection, however, in my mind is that the passage remains permanently open after the operation and use of the probe. Certain cases may indeed arise in which division of the canaliculus affords the best means of cure, and there could be no reason against using the "spring truss," if desirable, after this has been done.

In making pressure, the advantages derived from the use of a gutta percha pad I believe to be—1st, that it is unaffected by moisture; 2nd, it may be moulded to any shape, thereby affording great facility for adaptation to the parts concerned; 3rd, it admits the application of suitable dressings—a matter of importance where a fistulous opening exists. In such cases the patient derives great comfort from pressure if properly applied, and care be taken that the pad does not press too forcibly on

the parts. When simple obstruction of the duct exists, I usually apply, in conjunction with the spring truss, a saturated aqueous solution of iodine and iodide of potash, every second or third day, over the sac with good effect.

Finally, I may observe, that the treatment by pressure, together with Mr. Bowman's operation, will probably supersede the necessity for the old plan of silver style and button, with all its acknowledged inconveniences, in cases of lachrymal fistula.—*Lancet, July* 5, 1862, *p.* 22.

55.—ON TINEA TARSI.

By George Critchett, Esq., Surgeon to the Royal London Ophthalmic Hospital.

This is a very common, and a very obstinate and lingering affection, often coming before our notice in this hospital when it has existed several years. Authors differ as to the seat of this disease. I have examined many hundreds of cases in various stages, and I feel satisfied that it commences in the hair follicles, and produces its chief effects around the roots of the cilia. In the earlier stages and in the milder forms of the disease, several of the cilia may be observed to be surrounded by a thickened scurfy mass, which adheres tenaciously to them and to the skin around the follicles; on removing it forcibly, it forms a ring round the hair, and can be drawn off it; after its complete removal, a cup can be seen around the root of the cilia. This condition I have often noticed in young adults. In rather more severe cases large masses are seen closely matted in with the eyelashes, each mass including four or five hairs, hard, and composed of dry puro-mucous secretion and epithelium; sometimes partial in extent and sometimes involving the cilia of both lids. This is a condition frequently observed when the disease has existed for a few months. The secretion is so firm and tenacious that it can only be removed with the sacrifice of some of the hairs. When carefully and completely detached, it will be found to have stamped a deep impression of its form upon the margin of the lid; the follicles being enlarged and absorbed, so as to expose a considerable part of the bulbous portion of the cilia, like the root of a tree from which the earth has been gradually worn away. The surrounding parts are also frequently in a state of ulceration, and covered with thick and hard incrustations. As this state of things progresses, the cilia become thinned in quantity, dwarfed in their dimensions, and changed in the direction of their growth; and this change may involve the entire row or only a few separate hairs. All this keeps up a state of irritation and chronic inflammation of the entire eyelid, which induces further

changes of an important character, that in their turn react unfavourably upon the original disease. The delicate line of demarcation between the cutaneous and mucous surface is disturbed, sometimes at the expense of one and sometimes of the other structure.

In some cases, on everting the lid, the cuticular structure may be seen encroaching upon the conjunctiva, and dipping over the edge of the cartilage, to the extent of a line or more, covering its inner surface, and forming a white greasy ring round the punctum. Or again, the palpebral conjunctiva gradually invades the cutaneous margin of the lid, creeping over its anterior surface, and presenting the peculiar blear eye that is so characteristic of the latter stages of the diseases. Coincidently with these changes, the fibro-cartilage becomes thickened and contracted, together with the subcutaneous and submucous tissue, producing an indurated mass with a double convex surface, separating the punctum from the eye, and leaving a fossa, or sulcus, between the margin of the lid and the globe of the eye. The result of this is, that the displaced punctum becomes useless for carrying off the tears which accumulate in the fossa, and flow over the cheek, and thus assist in keeping up irritation in the part. This morbid condition may be prolonged almost indefinitely, extending over many years, and slowly becoming worse, but only reaching this stage gradually. The eye itself suffers secondarily from the want of the natural protection of the lids, from the constant flow of tears and from the increased vascular supply to the neighbouring vessels. We may encounter the disease in any one of the various stages that I have endeavoured to describe, and it may become arrested at any stage; but in certain conditions of the system, and where the disease has been allowed to run through its various stages unchecked, and after years of chronic inflammation, the ultimate changes that I have endeavoured to sketch occur.

These final changes I will briefly recapitulate. Every trace of cilia may be entirely lost; the lid may be thickened, everted, and reddened; the punctum displaced; the tears, increased in quantity by the irritation, will lodge in the palpebral fossa, and flow over the cheek, and the eye is kept in a state of secondary chronic inflammation in consequence of the morbid and altered state of its natural protectors, the eyelids. As a further complication that sometimes occurs, and that will be considered subsequently, the direction of the growth of the cilia becomes changed, so that they sweep the surface of the eye, and thus form an additional source of irritation.

This disease usually owes its protracted character to neglect; it is not in itself of a serious or intractable nature, but the longer it is allowed to pursue its course unchecked, the more

important are the changes that occur, and the more difficult does it become to restore the parts to a normal and healthy state. It seems to me highly probable that when the treatment of this disease is fully understood and universally practised, we may have to seek in vain for specimens of these ulterior changes in the palpebra which I have endeavoured to describe, and of which I now show you many examples.

The causes of this affection are doubtless both local and constitutional. Want of cleanliness very much predisposes to it; the local effect of cold having once set up a morbid action in the hair follicles, the accumulation around them keeps up the irritation, and assists in producing the further changes, all of which react unfavourably upon each other. The constitution also exerts an important influence; an irritable state of the mucous membranes generally, and a weak, ill-nourished, and strumous state of system, strongly predispose to this affection, and tend to keep it up. This is more particularly the case with children. The exanthemata frequently number this disease amongst their sequelæ. In adults it often assumes more of a local character. At a more advanced period of life it is very rare; but when it does present itself it is very severe, characteristic, and intractable, and seems to depend in some measure upon a very vitiated state of the mucous membranes generally, the result of protracted intemperance and of blood-poison.

I would now direct your attention to the subject of treatment—a subject that merits your utmost care, and will reward your efforts in the success that attends it, and in the consciousness that by simple means skilfully applied your patients may be saved from the effects of disease that, when neglected and mismanaged, materially interferes with the use of the eyes, and produces more or less permanent alteration in the parts, attended by deformity and impaired function. Even in the latter stages, when the disease has produced its worst results, very much may be done to relieve and restore. In the simpler forms, and in the early stages of tinea, the treatment mainly consists in carefully removing the little scurfy incrustations round the roots of the lashes until the cup-like follicle from which the hair emerges can be distinctly seen, and then in applying some mild form of mercurial ointment—the ung. hydrargyri nitratis mitius of the Pharmacopœia, is the form usually employed at this hospital; it may be varied in strength according to the effect it produces, and the pain it gives; or the oxydized nitrate of mercury ointment may be sometimes advantageously substituted for it. I have found it useless to give directions to the patients or their friends respecting the removal of incrustation round the cilia. The only effectual plan is to remove it yourself: it lies at the root of success. I have frequently met with

cases where suitable means have been employed for a considerable period without any benefit, merely from the neglect of this simple expedient, the remedy never having really and effectually been brought into contact with the disease. In more severe cases, large and irregular masses are firmly matted with, and adherent to, the cilia at their roots, and to the surrounding skin. The removal of these is attended with some difficuly and pain, and the incrustation rapidly returns. Under these circumstances one of two plans may be adopted: either the eyelashes may be drawn out, or carefully cut off close to the roots. I usually prefer the latter, because it gives less pain, and is equally effectual. This proceeding is not only of importance in enabling you to get at the root of the disease, but it impedes the reaccumulation of the incrustation, and enables the part to be kept clean and the application to be effectually made. After removing the lashes close to their roots, together with the incrustation, small irregular ulcerations will be observed on the tarsal margins, and around the roots of the lashes. These frequently bleed and present a moist secreting surface. I find that the best application in these cases is a finely-pointed piece of the nitrate of silver carefully applied to each of the excavations. In a few days the lashes will have grown sufficiently to admit of their being cut again, when the caustic must be reapplied. It does not occasion much pain, if care be taken not to encroach on the mucous membrane. This plan must be carefully persevered in until the lid assumes a healthy condition, which it usually does in the course of a few weeks. I have treated a large number of cases upon this method, and with excellent results. The chief difficulty is in getting patients to attend sufficiently often and for a sufficiently long period. They are apt to discontinue their attendance before they are quite well; and if they do, matters soon become as bad as ever.

During the intervals of seeing the case, the parts must be kept carefully cleansed, and a mild citron ointment may be employed, and some slightly astringent collyrium, such as a weak solution of the sulphate of zinc. Whilst employing these local means the state of the constitution must not be lost sight of, though it seems often to become in a great measure a local disease and to yield to local remedies. In children the secretions must be attended to, the diet regulated, and a healthy state of system promoted in every way. In young females the menstrual functions must be watched, and the circulation invigorated. In old chronic cases, in which more important changes have gradually taken place in the condition of the lids, the treatment is more difficult, tedious, and uncertain. Our efforts must be directed to restore the various abnormal conditions to health. The eyelashes may have entirely disappeared,

or may have become scanty, stunted, attenuated, and altered in the direction of their growth, thus depriving the lid and the eye of an important protection. It is seldom that the hair follicles are quite destroyed. I have had many cases in which every trace of cilia had been lost for several years, and yet, as the parts were restored to a healthy state, a fresh and vigorous crop of eyelashes has sprung up. This I have accomplished by perseverance in the removal of all incrustation, and in the application of the solid nitrate of silver. If the eyelashes are inverted, they must be either removed or the direction of their growth must be changed, by methods that will be more particularly considered when we come to the subjects of trichiasis and entropium. When the punctum has become displaced and no longer carries off the tears, the morbid condition is kept up and aggravated by the constant lodgment of the lachrymal secretion in the palpebral fossa, and all other treatment will prove abortive while this condition remains. The punctum, under these circumstances, must be laid open, as first suggested by Mr. Bowman; nitrate of silver, sulphate of copper, mercurial ointments, and astringent lotions must be employed to reduce the thickened and indurated lid, and to bring its enlarged, reddened, villous mucous lining to a healthy condition; the nitrate of silver is most valuable in these severe cases. I may mention that these changes are usually more marked in the lower than in the upper lid. It occasionally happens that the exposed surface of the palpebral conjunctiva that has usurped a part of the cutaneous covering of the eyelid is exceedingly painful and irritable, and seems to be aggravated and injured by every form of caustic astringent or pungent application. Such cases are, however, rare, and seem to depend chiefly upon some constitutional derangements. In such cases various soothing means may be tried: repeated hot fomentations, with or without poppy-heads, bland ointments, anodyne lotions, glycerine, careful protection from cold air. Some of these cases are less amenable to treatment than those I have previously described, and in some instances have effectually resisted every plan of treatment that I could devise, both constitutional and local; and nothing remains to be done except to lessen the deformity and palliate the suffering by the use of coloured glasses or goggles.—*Lancet*, *Oct.* 25, 1862, *p.* 439.

56.—CASE OF CATARACT AND DIABETES.

By W. P. Swain, Esq., Surgeon to the Devonport Dispensary and Institution for Diseases of the Eye and Ear.

The dependence of cataractous lenticular opacities on diabetes is no longer doubted. Græfe asserts that he has found them

present in one quarter of the diabetic cases under his care. As to whether the surgeon is justified in having recourse to operative measures is, however, a question still under discussion, and of no little importance to the well-being of the patient, and the credit of the surgeon. The following case may, therefore, be well put on record :—

Jane B., aged 39, widow of an agricultural labourer, came to the dispensary on August 10, 1861. She was, in September, 1859, attacked with all the symptoms of diabetes, and was under medical treatment for that disease for some period, with slight improvement. About the middle of the year 1860, her vision became impaired. She was unable to read, and eventually to distinguish features. She has now perception of light only. She is much emaciated, pulse 112. Tongue red, bowels confined and lumpy, breath of a peculiar sweet odour, pain in loins, passes three quarts of water in the twenty-four hours, much charged with sugar. Specific gravity 1050. She is not able to find her way about, and her blindness, caused by soft cataract, preys much upon her mind. She is most desirous of having something done to restore her sight. Under these circumstances I resolved to operate, and on Saturday, August 17th, I performed Schuft's operation on the right eye. The nucleus was small, and the whole lens easily removed. She was able, immediately after the operation, to distinguish objects in the room, and could see the ring upon my finger. After the operation she had little or no pain. I kept both eyes closed for a day or so. No inflammation supervened, and at the end of a week, with her consent, I performed the same operation on the left eye. As on the former occasion the lens was removed without difficulty ; little pain was felt, and no inflammation set in. She remained in town for about a week, and during the whole of her stay, having been kept on good meat diet and bran biscuits, her constitutional symptoms were much improved, and, on September 3rd, she went into the country. On September 21st, three weeks after the second operation, I again saw her, and fitted her with a pair of cataract glasses, with which she was able, with ease, to read ordinary small type. Her spirits are much improved, and in every respect she is better. The water was diminished to two quarts in twenty-four hours. I have no hope that she will, in her position of life, for any very long period, resist the inroads of so fatal a disease as diabetes ; but of this I am confident, that I have much lessened the burthen of her days at the expense of very little pain to her, and trouble to myself. From a solitary case no general rule can be deducted, but its record may perhaps induce others to follow my example, both in operating in such cases and recording the result.—*Ophthalmic Hospital Reports, Jan.* 1862, *p.* 331.

57.—A NEW EAR DOUCHE.

This invention consists of a glass cup, of suitable shape, from the bottom of which projects a metallic jet, to pass into the orifice of the ear. This is connected, by means of an elastic tube with an apparatus of similar construction to that of the eye douche noticed in the Lancet of March 31st, 1860, the principle and application of which are highly approved by many eminent oculists, and other members of the profession. The advantages offered by this instrument are, that in its use, the fluid does not run down the patient's neck, there is no splashing, and the jet cannot possibly penetrate too far, and injure the interior of the ear, as is frequently done with the ordinary syringes. It can also be used by the patients themselves with the greatest facility, and any quantity of medicated fluid, or water, can be readily applied to the interior of the ear, without the necessity of re-using the same fluid. Messrs. Savory and Moore are the inventors.—*Lancet, May* 4, 1861, *p.* 438.

58.—*Treatment of Earache.*—M. Emile Duval says that he has, in person, found relief in severe earache, after other means had been tried in vain, from the use of a mixture of equal parts of chloroform and laudanum; a little being introduced on a piece of cotton. The first effect produced is a sensation of cold; then there is numbness, followed by scarcely preceptible pain and refreshing sleep.—*British Med. Journal, Oct.* 12, 1861, *p.* 394.

MIDWIFERY,

AND THE DISEASES OF WOMEN, ETC.

59.—ON THE NEW METHOD OF INDUCING PREMATURE LABOUR AT A PREDETERMINED HOUR.

By Dr. Robert Barnes, Lecturer on Midwifery at St. Thomas's Hospital.

[All the methods in ordinary use, for inducing premature labour, are more or less uncertain as to the time they take to effect the object in view. This entails danger to the patient and inconvenience to the medical man.]

Labour may be induced at will, and terminated, if desired, at an appointed hour, with as much precision as to time as almost any operation which the surgeon performs. By adopting this new method, it is just as feasible to make an appointment at any distance from home, to carry out, at one sitting, the induction of labour, as it is to cut for the stone. The operation is brought within the entire control of the operator. Instead of being the slave of circumstances, waiting anxiously for the response of Nature to his provocations, he is master of the position. He determines beforehand, on a survey of the requirements of the case, the time when the patient ought to be freed from the imperilling pregnancy, and may with confidence announce to her the term of her anxieties.

The method I have pursued is by no means uniformly simple. It implies a combination of resources. But the primary and all-important point consists in the artificial dilatation of the cervix uteri by the use of the specially constructed caoutchouc bags distended with water.* The particular steps of the opera-

* The instrument I use is of a fiddle shape, having, when distended, a narrower cylindrical central portion, dilating at either end into a bulging or mushroom-like expansion. The object of this is to prevent the bag from slipping forward into the uterus, or backwards into the vagina. The bag is prolonged into a long narrow tube with a stop-cock at the end, to keep in the water when injected. The injecting medium is the ordinary Higginson's syringe,—an instrument which should always be carried in the obstetric trousseau, as it is useful for many other purposes. Three bags of different sizes are sufficient as a series. To facilitate the introduction of the flaccid bag into the cervix uteri, a small pouch is attached outside, to receive the end of the uterine sound, which, guided by the finger of the left hand, applied to the os uteri, serves to push the bag into the cervical canal. The instruments are well made by Messrs. Weiss, Strand.

tion are sufficiently described in the cases that follow. It is, however, desirable to explain the principle that governs the application of the measures successively called into use. The first condition to be fulfilled is the full dilatation of the os uteri; this may be called the preparatory stage. The second condition is the excitation of the uterus; this may be called the provocative stage. The last step is the expulsion or extraction of the fœtus; this is the accelerative or concluding stage. The first stage is accomplished by a preliminary dilatation of the vagina, after the manner practised by Braun, of Vienna. But there is no need of a special instrument. The medium or full-sized caoutchouc dilator made for the cervix answers equally for the vagina. Then, the smallest, or medium dilator, is introduced into the cervix, care being taken that the terminal bulging part shall pass through the os uteri internum, whilst the inferior bulging end emerges in the vagina. When water is thrown in, the dilator is thus secured by its shape *in situ*, and the eccentric pressure bears upon the whole cervical canal, and especially upon the two points of greatest resistance, the ora externum and internum. This stage ought not as a rule to occupy less than three or four hours. Dilatation is naturally a gradual process, not a violent precipitate one. When the dilatation is complete, it is obvious that the great obstacle to delivery is overcome. If expulsive pains arise, the problem is solved; for the way is clear. But if pains do not arise, we must excite them. Some uterine contraction may be counted upon, if we draw off a portion of the liquor amnii, and compel the uterus to collapse. The most convenient stage for tapping the membranes is generally before the full dilatation of the cervix. The dilator should be replaced before the liquor amnii has wholly drained away. The retention of a portion is useful as a security to the child, and to facilitate the operation of turning, should this measure become necessary. But notwithstanding the full dilatation of the cervix, and the rupture of the membranes, expulsive action may not arise. It may, therefore, be necessary to resort to the accelerative measures. These are: the forceps and turning. If the head presents, and the soft and hard parts admit, the long forceps should be applied without any considerable delay. If this instrument be excluded, we have a final and sure resource in turning. But it will often be essential to carry out this ultimate operation by the method of combined external and internal manipulation, which dispenses with the necessity for passing the hand through the cervix uteri, or above the brim of the pelvis, which latter may be distorted.

The cases which follow have not been reported in my memoir in the Obstetrical Transactions.

Case 1.—*Albuminuria at seventh month of pregnancy; convul-*

sions; labour induced by dilatation; delivery completed in two hours; recovery.—6th Nov., 1861. My assistance was requested by Dr. Tidy of Hackney, in the treatment of a case of convulsions. The patient was a young woman, the wife of a butcher, and had, till her present illness, enjoyed good health. She married in March, and was believed by her friends to be in the seventh month of her pregnancy. Some weeks ago, slight swelling, impeding the free use of her hands, was observed; but there was nothing distressing until the 3rd instant. Since this date anasarca has become rapidly general and considerable. On the 5th, having complained of blindness, she was seized with eclampsia, and remained more or less comatose. Dr. Tidy bled her to ten ounces. The effect of this bleeding was very satisfactory. There were no fits after 8 a.m. of the 6th, but she lay comatose, though not always profoundly so. The bowels were freely relieved by a purge. I saw her at half-past five p.m. of the 6th. She was semi-comatose; did not answer questions; the pupils could not be observed, owing to the strength with which she clenched the eyelids when touched; pulse 100; tosses about; face, neck, and hands much swollen; face cyanosed. Urine had been freely passed in bed. Blood drawn yesterday shows a large, loose, red clot, not buffed. The os uteri was not at all open, but admitted tip of finger on pressure; it was reached with difficulty. The persistent coma, which had already lasted more than twenty-four hours without signs of remitting, determined us to deliver. The membranes were punctured with a knitting-needle; a little liquor amnii escaped; the head presented. The patient was left for two hours, to allow the uterus to contract and prepare for expansion of the cervix. At 8 p.m. we met again. A pint of urine was drawn off. The os was but slightly open; there was no indication of labour, and the patient's general condition was not more promising. I applied a caoutchouc dilator, distending it with water, in the first place, to the vagina, so as to remove all obstructive rigidity in this part of the parturient canal. The vagina was quickly expanded, giving more freedom for further manipulation, and slightly opening the os externum uteri. I then applied a dilator mounted on a flexible metallic stem inside the cavity of the cervix; by gradual distension during thirty minutes a considerable expansion had been gained; three fingers could be introduced and feeble labour-action was excited. She was given thirty minutes more to allow this action to work. At 9 p.m. the os uteri was a little more dilated; but the pains were so feeble that there seemed no certainty of delivery being effected spontaneously for many hours. I therefore sought to deliver by bi-manual version; but owing to the great length of the cervix and of the uterus proper, which was a rigid cylinder, the absence of the liquor amnii, and the tonic contraction of the uterus, I

did not succeed readily. A loop of cord came down before the head; it was pulseless. The head was perforated at once, and forty minutes were spent in careful extraction by the crotchet, the bones affording but slender hold. The uterus contracted well, and cast the placenta. Chloroform was administered during the operation for the purpose of securing the quiescence of the patient.

On the 13th November, I learned that consciousness quickly returned after delivery; the anasarca soon disappeared, and the patient did well.

The urine drawn by catheter was acid, turbid, loaded with albumen, specific gravity 1024; it contained 1·66 grains of urea in 100 grains. After standing forty-eight hours it yielded abundant crystals of uric acid, and numerous sporules and strings of sugar fungus.

The interest of this case consists in the rapidity, certainty, and safety with which labour was induced and completed. Under the ordinary methods, delivery could not have been counted upon in less than twelve hours, if even so soon. Coma would have persisted, eclampsia would almost certainly have returned, and death would probably have supervened whilst delivery was being expected. By the method adopted, in two hours, security was attained for the mother, relief from anxiety by the friends, and for the medical attendants there was the pleasing consciousness of having triumphed over a formidable disease.

Case 2.—I was called in to deliver Mrs. H. of her first child, on account of convulsions complicated with contraction of the pelvis. She was in labour at term. It was necessary to perforate and deliver by the crotchet and craniotomy forceps. In her second labour I was again called in to deliver. This time she was not suffering from convulsions, but the pelvic contraction excluded delivery by any other mode than by craniotomy. In her third pregnancy, she consented to have labour brought on at seven months. This was done by a combination of ordinary methods, such as the sponge-plug to the cervix uteri, vaginal and uterine douches, ergot, and rupture of the membranes. A living child was delivered after some difficulty, by turning. On this occasion, notwithstanding the successful issue, much time was lost, and risk of failure was incurred through the tedious uncertainty of the methods employed to bring on the labour. The operations extended over several days; and instead of being "master of the position," as I conceive the accoucheur ought to be on these occasions, I was obliged to wait upon nature until she was sufficiently provoked by our interferences, to permit delivery to be completed.

In Mrs. H.'s next pregnancy I was better prepared. On the

18th February, 1861, she being then about seven months gone, I detached the membranes from the orificial zone; on the 19th, the intra-uterine douche was applied, and the caoutchouc bag was used to dilate the vagina. On the 21st, the intra-uterine douche was again applied, and then the elastic dilator was applied for a short time to the cervix. The os yielded somewhat, and I fixed the next day for the completion of the labour. This was effected satisfactorily, by further dilatation of the cervix by water-pressure, and by turning by combined external and internal manipulation. Mother and child again did well.

On this occasion also, notwithstanding the new power I had acquired in the caoutchouc dilator, the process had been unnecessarily tedious. I was not yet satisfied. On the 6th Aug., 1861, Mrs. H. ceased to menstruate. Calculating from this day, she would be 230 days pregnant on the 25th March, 1862. When she came to me in January last, I therefore fixed that day for her delivery. Accordingly, at five p.m. on that day, I expanded the vagina by introducing the medium-sized dilator for ten minutes. This also acted a little on the os uteri, which now admitted the tips of two fingers. I then ruptured the membranes; some liquor amnii followed. I appointed to see her again at 7 p.m., and to conclude the labour. At 7 p.m. a good deal of liquor amnii had drained away; but the os was not more dilated, and there were no pains. I passed the medium-sized dilator into the cervix, and expanded it by water. The instrument was left in forty minutes. Examining at the end of this time, I found that it had slipped forward quite into the uterus, so that pressure had not been fairly exerted on the cervix. I therefore secured the dilator in its proper situation, and renewed the distension. At 10 p.m. the cervix had expanded to the size of the rim of a wine-glass. I thought this enough to admit the child, which I had resolved to deliver by turning, to pass, as the forceps could not be applied, and the uterus could not be counted upon to contract sufficiently to expel it. Passing the left hand into the vagina, with barely more than the first joints of two fingers through the cervix, I pressed steadily on the presenting head, directing it towards the left iliac fossa, and forwards, whilst the breech was pressed in the opposite direction by my right hand, applied to the fundus uteri externally. In a very few minutes the head was thus put on one side, and a foot, the right, was felt over the centre of the os. This was seized and brought down, whilst by consentaneous upward pressure upon the head, above the pubes, version was effected. The child turned out to be larger than I had anticipated from the period of the pregnancy, so that nearly twenty minutes were occupied in the careful traction of the breech through the cervix. This stage I did not hurry, as more complete expansion

of the cervix was desirable, to permit the trunk and head to pass rapidly to secure the child's life. The breech being delivered, the pulsation of the cord became almost imperceptible. I then hastened the extraction of the chest; the extrication of the arms occupied two or three minutes, being impeded from narrowness of space; the head again was delayed two or three minutes, considerable traction being exerted to bring it through the pelvic brim. The child, a girl, larger than her two living children, was born apparently dead; only the faintest pulsation of the heart was felt; that in the cord was quite gone I tied the cord, and sought to excite respiration by applying a flannel, wrung out of hot water, to the chest. Gradually faint imperfect inspiratory movements were made; the heart beat more strongly, and the cord pulsated. The child was then removed to a hot bath, in which it was partly immersed; the water being dashed at intervals over the chest. By perseverance in this treatment, in about half-an-hour, respiration was, to my great satisfaction, fully established. The placenta caused some trouble from the narrowness of the parts. There was very little hemorrhage. I got home at 11.15 p.m., having kept my engagement, and having expended in all not more than five or six hours in the nduction and completion of labour.

This striking result could not have been attained without,—

1. The dilators to expand the cervix, and prepare the parturient canal for the passage of the child.

2. The operation of turning by the bi-manual method.

Case 3.—*Placenta Prævia: Acceleration of Labour by Artificial Dilatation of Cervix Uteri.*—20th June, 1861. Mrs. C. has had thirteen labours; considers she wants five weeks of time; reckons from date of her husband's return from Australia. Taken with smart flooding yesterday morning. Flooding recurred in evening. Several practitioners were applied to: I being engaged. There was hemorrhage again on the 20th, and more or less oozing continuously. I saw her at 8 p.m. Os dilated to size of a half-crown, not yielding. Cervix 1·5″ long; inner os sharply defined; placenta quite over it, slightly detached at parts; head presenting; could not reach margin of placenta. Patient restless, but not exhausted. Hemorrhage still. I passed my hand into the vagina, and completely detached the placenta from the lower zone, for a ring of 2″ radius from the os. I was then able to reach the margin of the placenta at the left side. I perforated the membranes by a steel pen, making a free rent with my fingers. Scarcely any liquor amnii followed. No hemorrhage. I left her to natural powers for a short time, not having my caoutchouc dilator with me. At 11 p.m. I went again; there had been a little hemorrhage; the os was the size of a crown, not yielding; no pains. Indication to deliver: but

this could not be done without violence, unless the os were previously expanded. I applied fiddle-shaped dilator, and distended it with water; it maintained its place well; in twenty minutes the cervix was more open, but not fully. I, however, thought parts fit for turning. By two fingers on head, and by the right hand applied externally to the breech, I attempted version; could only partly succeed. I felt the cord, which was without pulsation. I soon caught a knee, when I pushed up the head away from the pelvis by the palm of my right hand; the knee was brought through the os, two fingers only having been passed into the uterus. I kept the knee some twenty minutes in the cervix, completing the dilatation of this structure gradually. When the breech had passed, the trunk and head soon followed. Pressure had been kept up on the uterus, so it contracted well. I brought away the placenta without much difficulty, although some portions within the lower zone still adhered. Two cotyledons were thicker than the rest, infiltrated with blood partly coagulated; these cotyledons had covered the os. The insertion of the cord was near the edge of the placenta, and the rent was at the same spot. Child inanimate. The patient made a good recovery. In this, as in several others conducted on the same principle, rapid and safe dilatation of the cervix uteri was effected without resorting to the *accouchement forcé*.

Case 4.—Mrs. R. I undertook this case in conjunction with Dr. Mason. The patient has gone through a terrible series of puerperal troubles. She has been eleven times pregnant. The following is a summary account of the first ten labours, supplied to me by Dr. Mason:—1st labour, natural, in labour three days,—child dead; 2nd, three days in labour, child alive; 3rd and 4th, delivered by long forceps, children alive; 5th and 6th, delivered without instruments, children being small, born alive; 7th and 8th, delivered by long forceps, children alive; 9th, labour induced at eight months, by sponge-plug in cervix, and rupturing the membranes,—labour terminating by craniotomy by Dr. Waller; pyæmia, which Dr. Mason ascribed to the offensive matter arising from the presence of the sponge-plug; recovered after a very severe illness; 10th, induction of labour at seven months by injection of cold water,—tedious process, labour terminated a week afterwards,—child alive. Eleventh pregnancy: Calculating that 240 days would expire, on the 16th April, 1862, I appointed to meet Dr. Mason at 5 p.m. on that date, to bring on and terminate premature delivery. At 5 p.m. I dilated the vagina by the water-bags, for about thirty minutes. The vagina became considerably relaxed and lubricated, and the os uteri externum had a little yielded. I next introduced the medium bag into the cervix, and dis-

tended it gently. This was left in thirty minutes. At end of this time, the cervix would admit two fingers, but there was still a tight ring. I then ruptured the membranes by a steel pen. In a few minutes a moderate quantity of liquor amnii flowed. We left her for thirty minutes, to allow of further draining, and give the uterus opportunity to contract. On our return, the os was not much more sensibly dilated, and there were no pains. The cervical dilator was again introduced, and distention was maintained till past nine, when the cervix was sufficiently dilated to admit of birth.

The general smallness of pelvis, and the previous experience of Drs. Waller and Mason, rendered it inexpedient to use the forceps; and as parturient action could not be depended upon, I proceeded to turn. Two fingers were passed through the cervix to push aside the head, whilst pressure on the fundus pressed the left knee within reach. This was brought down. Great care was taken to bring the breech gradually through the pelvis, so as to ensure full dilatation of the cervix, before the shoulders and head were engaged in the brim. The extraction of the breech occupied thirty minutes at least. When this was born, the cord still pulsated, but was much compressed between the child's body and the tightly-embracing soft parts of the mother. Delivery was now accelerated; the arms were disengaged rapidly, and the head drawn through the brim. This latter stage required some little force. The child was of fair size; a girl; at first asphyxiated; heart beating feebly. I stimulated external respiratory nerves by warm water. Respiration found excitable. It was then kept in a warm bath, as high as the belly, and a flannel soaked in warm water dashed at intervals on chest. Gradually, in twenty minutes, respiration was fully established; the child cried freely. Placenta not coming readily, I had to pass my hand into the uterus to bring it down edgewise, as its bulk precluded its descent in the ordinary form. It was very large. For an hour after we remained with the patient. She seemed to me much depressed, as if by the shock of labour; the heart's action was enfeebled. Brandy and chlorodyne revived her. Dr. M. was less anxious than I was, as he said she had always manifested the same symptoms after her labours; and the prostration was less marked now than on former occasions.

On the next day, Mrs. R. was doing well. She had suffered much less than on any previous occasion. She had not undergone nearly an equal amount of physical distress, whilst her mental anxiety had been reduced from days and weeks, to a period of five hours. On the 25th April, I received a note from Dr. Mason, informing me that "Mrs. R. was quite well, and wonderfully pleased at the result of this confinement, a strange contrast to all previous ones."

The cases above narrated illustrate several of the most important applications of the new method of inducing and accelerating labour. The perils attending puerperal convulsions, and placenta prævia, may be almost at once terminated by this proceeding. In every case where it is an indication to dilate the cervix uteri, as for the purpose of facilitating the application of the forceps, or the operation of turning, the operation proposed offers a ready means of effecting the purpose.

A distinguishing merit of the new operation consists in the substitution of gentleness for violence. The *accouchement forcé*, held necessary at times to avert greater perils, may be altogether discarded from practice. There is no longer any excuse for the forcible dilatation of the cervix uteri by the hand,—a proceeding which may lacerate and must bruise the soft structures, and to which I have traced in many cases the origin of fatal pyæmia.

I anticipate with some confidence, that the method of inducing premature labour now described, will supersede those now commonly resorted to. If it be objected, that the proceeding or the series of proceedings recommended, constitutes an operation demanding considerable nicety of discrimination, and delicacy of execution, I submit that these are qualities which it is not unreasonable to expect in men who undertake the responsibilities of obstetric practice.—*Edinburgh Medical Journal, July*, 1862, *p.* 1.

60.—ON THE INDUCTION OF PREMATURE LABOUR.

By Dr. C. D. Meigs, Professor of Midwifery in Jefferson Medical College.

Dr. Karl Braun, of Vienna, proposed, a few years ago, to open the os uteri by means of what he called a Colpeurynter, which is a small delicate bag or bladder composed of vulcanized rubber, to which is attached a syringe and a stop. This bladder, not bigger than a walnut, if introduced within the vagina, may be distended by means of the syringe with tepid water or air. It may be inflated or distended so as to become equal in size to a small fœtal head, and if the distension be gradually and very slowly effected it will not necessarily produce any distressing or painful sensation.

Now, as the uterine extremity of the vagina arises from the outer circumference of the cervix uteri, it is clear that such a distension as above supposed could not fail after due time to draw the walls of the cervical canal outwards, and so diminish the antagonism of cervix and os uteri to that of the fundus and corpus uteri. This very condition of lessened resistance is all that is requisite in the case, because, as soon as the power of

the fundus and body becomes preponderant, it will begin to force the ovum downwards, and at length, after dilating the cervix and os, expel it. I apprehend the method to be in all cases infallible—the condition being that the colpeurysis shall be properly effected.—*American Journal of Medical Science, April*, 1862, *p.* 329.

61.—ON COMPLETE OBLITERATION OF THE OS UTERI AS A CAUSE OF DIFFICULT LABOUR.

By M. Mattei.

M. Mattei has presented to the Academy of Medicine a memoir on the above subject, founded upon an analysis of forty cases which have been already published, and upon the details of two others which have come under his own notice. He thus sums up his results:—1. The complete occlusion of the cervix uteri, whether at its orifices or within its cavity, may be the result of local inflammatory action; but in the majority of cases (in 19 out of 31 in which this has been noted) it has been the result of the organisation of the plastic plug which is found within the cervix during gestation. 2. This obliteration scarcely ever prevents the pregnancy reaching its full period, and sometimes even retards it. Examination alone reveals it at the time of labour. 3. The occlusion is generally (36 times out of 42) sufficiently firm to resist the natural efforts, to such an extent, indeed, that the woman has in some cases (3 in 42) died undelivered. Where interference has been tardy also, the death of the child (7 times in 28 cases noted), and even the death of the mother (2 in 28 cases noted), have been the result. 4. When the obstacle has not been very resisting, the nail or the female catheter has sufficed to overcome it; but when these do not succeed, the scissors or bistoury must be resorted to. 5. The bistoury has been in general preferred, but its employment is not unattended with danger, as it has to be employed at the bottom of the vagina, usually unassisted by the eye, as the division of the very vascular tissues is capable of giving rise to hemorrhage, as the angles of the wound may enlarge beyond the point of incision, and as the fœtal parts may themselves become injured. 6. To obviate these inconveniences we may substitute for the bistoury the point of the grooved director, applied with force during the uterine contraction at the lowest part of the tumour, or, when it can be recognised, at the point occupied by the cervix. In this way a passage may be hollowed out through the tissues, the danger incident to the employment of the bistoury being avoided.—*Med. Times and Gazette, Oct.* 11, 1862, *p.* 393.

62.—ON THE MECHANISM OF LABOUR.

By Dr. Halahan.

[The following paper was read before the Dublin Obstetrical Society.]

The position in which the head of the fœtus enters and passes through the pelvic cavity during labour, has long occupied the attention of many midwifery practitioners, and given rise to a great deal of discussion. But I am convinced every practical man must allow that the description given by Naegelé, is the accurate, and also the only correct one; and that the practitioner cannot, with any degree of truth, contradict the statement that the head, at the full term of gestation, enters the pelvis in the four positions described by him. I shall here briefly enumerate them: the first has the anterior fontanelle directed to the right sacro-iliac synchondrosis, and the posterior one towards the left foramen ovale; the second, is where the anterior fontanelle is, to the left sacro-iliac synchondrosis, the posterior one to the right acetabulum; the third is the reverse of the first, and the fourth of the second.

I am equally certain that those who pursue the study further, will agree with me in saying, that though the head enters the brim in the before-named four positions, yet, at the commencement of labour, when the os uteri is barely beginning its dilatation, the anterior fontanelle is always directed towards either acetabulum or presenting in the third or fourth positions of Naegelé. That the fourth changes, at the beginning of labour, into the first; and the third does not change into the second until the head is distending the perineum; that this is the general course, any other being an exception.

That to diagnose the position in the first stage of labour, is one of the difficulties that the accoucheur has to overcome, I am fully aware of. Nothing but constant attention, very extensive practice, together with a delicate touch, will, with any degree of certainty, conquer the obstacles, and make him master of this part of his profession; for, although in theory it seems very easy indeed to be able to diagnose positions, or to say which fontanelle presents at either acetabulum, we find, in practice, it is one of the most difficult points to be perfectly satisfied about, particularly when the head is high up, the membranes entire, and the os uteri not more dilated than to the circumference of a shilling.

If, then, it is a fact that at the commencement of labour the face is always directed towards the pubes, (and I have taken the greatest care and trouble to be perfectly certain, and have fully satisfied myself that it is so, not by the mere examination of a few ordinary cases, but by the most careful and constant inves-

tigation of some thousands of patients which I had the opportunity of watching from the commencement of labour until the completion of the second stage), there arises the question, how is it we seldom find the head in the fourth position when entering the brim, or even in that position when the os uteri is half dilated, but on the contrary, generally discover it in the first? Whereas, in the third, it is the exception for the change to the second to take place until at the termination of the second stage. The simple answer is, that when the posterior fontanelle is on a lower level than the anterior, the change takes place immediately after the accession of labour, or, in other words, when the chin becomes depressed on the chest, or flexion of the head occurs early, which is the case in the presentation of the head in the fourth position. But in the third, we generally find the anterior one a little lower, or on a level with the posterior, the head being neither flexed nor extended, which prevents the change taking place until the posterior one becomes the lower. This seemingly slight difference in the two makes a very great one in the effect of the uterine action in its efforts to expel the head, and make the change which I shall now try briefly to explain.

I presume all will allow that the pain or force of the uterus takes its course in the axis of the pelvis, and that the entire power may be directed effectually, and with as little loss as possible, it is necessary that the occiput should move in the same axis. This is the case in the first and second positions of Naegelé; consequently, if the head enters the brim in either of these positions, we should expect that labour will proceed favourably. If we examine a patient at the commencement of labour and find the head presenting in the fourth position, the posterior fontanelle will generally be the lower or most easily reached by the finger, the anterior one being very high up, and felt with difficulty. This admits of the uterine force having full power on the head, and the change taking place at once. But when the anterior fontanelle is on a level with, or a little lower than the posterior one, the greater part of the uterine force is lost, being divided between the occiput and sinciput. This can only be understood by remembering the direction the uterine force takes, as well as the part of the head it has most power on, as we shall there see that when the forehead is the lower part, the pain has not its full effect on the head, but that there is a loss of power. This is the case in the third position, which I think clearly shows the reason that the head enters the pelvis in the second position so rarely. Again, if we find the anterior fontanelle presenting, in fact, mid way between the sacrum and pubes, in the third or fourth position, we may naturally expect that the labour will be rather protracted, and the second

stage very much prolonged, for the head will, with very few exceptions, be expelled, face to pubes.

It may very reasonably be asked, is there any practical use in being able to diagnose in what position the child's head is presenting? Certainly there is, the greatest. I shall merely mention two instances. In applying the forceps, we always intend and wish to place the pubic blade over the ear, which will be felt a little to the right or left of the pubes. Supposing, then, you have the instrument correctly placed, is it not of very great importance to know which ear is towards the pubes, as in the first and third positions, we have the ear in the right half of the pelvis; but if, not knowing the head is in the third, we try to rotate as if it was in the first, we bring it out, face to pubes, which is not so favourable as if we had changed it into the second position, the occiput not adapting itself to the hollow of the sacrum in the same manner in which the face does? Again, if version is to be performed in a head presentation, is it not of the utmost importance to ascertain whether the feet are lying towards the abdomen or back of the mother, whereby we may know which hand to use in performing the operation, and this fact can only be ascertained by an accurate knowledge of the position?

I have put in a tabular form five hundred cases in which the head has entered the pelvis, showing the relative frequency of the four positions of Naegelé, taken indiscriminately from the beginning of this year. It will be seen that the first position is the most frequent of all, being 61 per cent.; the third next, being 31·60 per cent.; the fourth next, being 6·40 per cent., and the second least of all, being 1 per cent. That the third changed to the second in every four cases out of five, or nearly so, the proportion being 79·75 that changed, and 20·25 expelled face to pubes. The fourth changed into the first in 84·37 per cent., and continued as it entered the pelvis in 15·62 per cent.

The ascertained Position in 500 *Cases,* 1861.—*Positions of Naegele.*

	1st	2nd	3rd	Primary 3rd changed to 2nd	Total 3rd Position	4th	Primary 4th changed to 1st	Total 4th Position
Total in 500 cases,	305	5	32	126	158	5	27	32
Per centage,	61	1	6·40	25·20	31·60	1	5·40	6·40

Of the 158 cases in the third position at the commencement of labour, 126, or 79·75 per cent. changed to the second; and of the 32 cases in the fourth, 27, or 84·37 per cent. changed to the first in the progress of the labour.—*Dublin Quarterly Journal, May*, 1862, *p.* 467.

63.—ON TURNING IN CASES OF DISPROPORTION.

By Dr. Alfred H. M'Clintock, (being an Abstract of a Paper read before the Obstetrical Society of London.)

This paper embodied the results of seventeen cases which came under the care of Dr. M'Clintock in the wards of the Dublin Lying-in-Hospital. In each of them turning had been performed, at various periods after the commencement of labour, on account of disproportion between the head and the pelvis. In none of these cases was there any considerable deformity of the pelvis, though the obstetric histories of the women clearly showed that there must have been some slight narrowing of the superior strait. More or less difficulty was experienced in every instance in bringing down the head into the pelvis, and twice craniotomy had to be resorted to. On one occasion the parietal bone (that next to the sacrum) was fractured in pulling down the head through the brim of the pelvis. With one exception, all the patients were deeply chloroformed before the operation of version was undertaken. Nine of the children—viz., four boys and five girls—survived birth, though all were alive when the operation was commenced. Of the eight children dead born, five were boys and three were girls. The heart continued to pulsate for several minutes after birth in some of the children recorded as "dead born," Dr. M'Clintock not considering a child as saved by an obstetric operation, nor recording it amongst the "live births," unless respiration be fully established. All the women recovered satisfactorily but one, who died of puerperal fever, of which some cases had occurred at the time in the hospital.

In reviewing these cases, Dr. M'Clintock expressed his opinion that the operation was not so favourable for the child as some of its advocates had supposed, and that it was only when the amount of pelvic narrowing was very slight that we could reckon with any degree of certainty upon saving the fœtus. He would not, therefore, recommend the operation in preference to the induction of premature labour in cases where an option was left us, and a decided contraction of the pelvis was known to exist. At the same time that it was a valuable resource in cases of this class which may have reached the full period of pregnancy, he proved by the fact that, of eighteen boys born to the above patients,

and delivered by other modes than turning, only two were alive at birth; whereas four out of the nine delivered by turning survived their births.

Looking to the interests of the mother, the author of the paper considered that the operation of turning in the particular class of cases under notice had stronger claims; for not only did it abridge the labour process, which in itself was no small advantage, but it averted the possible contingencies of craniotomy, high forceps operation, or even rupture of the uterus. Its great mechanical advantage, Dr. M'Clintock thought, was due, not to the position of the head nor its greater compressibility when coming through the pelvis with the base foremost, but to the unlimited amount of force which we can bring to the aid of the uterus by traction on the body of the child.

[Dr. BARNES observed that two hundred years ago, partly from the absence of those instruments now in use, the operation of turning in cases of disproportion was much more freely resorted to than at present. The general result of his experience is as follows:]

Disproportions might be divided into three degrees. First, there were slight disproportions giving rise to protracted labour, which admitted of being relieved by the long forceps; but the forceps must be not only long, but double-curved, well made, and capable of being worked by the two hands. There was a second class of cases, lying between the class capable of relief by the forceps, and the third degree or class, in which craniotomy was necessary. This second or intermediate degree it was that properly admitted of treatment by turning. Beyond the third degree might be added a fourth, in which the Cæsarian section was the resource. It was thus seen that the operation of turning stood between the patient and craniotomy, promising to avert the necessity, in some cases, of resorting to that repulsive operation. It did not appear that the disproportion in most of Dr. M'Clintock's cases was great. It seemed probable that in some of them the long forceps might have been successful. Where there was only slight pelvic contraction, he (Dr. Barnes) thought it right to try the forceps first, and failing in this manner, to proceed to turning. It was true that the practice was necessarily experimental. Dr. M'Clintock had fairly said that we could not determine beforehand the size of the child's head. We could not, therefore, tell beforehand what the degree of obstruction would be. But if the child were born dead after turning, we had at least the satisfaction of reflecting that the child was not sacrificed of necessity by the mode of operating, as was the case in perforation. If it perished, it was because it had to pass through a pelvis whose condition was incompatible

with the birth of a living child. He did not assent to the opinion of Dr. M'Clintock, that the head did not come through the pelvic brim more easily when drawn through base first, than in the ordinary mode of entry by the crown. He thought the passage much facilitated. It might seem strange, but he had seen reason to believe, that in these cases of disproportion the child had a somewhat better chance of being born alive than after turning under ordinary conditions. The common cause of disproportion was slight projection of the promontory of the sacrum; on either side a marked hollow was preserved, in one or other of which the cord would lie protected. A very valuable application of the practice was found in the completion of delivery after perforation. In cases where much difficulty had been experienced in extracting the head by the crotchet and craniotomy-forceps, he had, on several occasions, delivered with ease in a few minutes by turning. Much labour to the practitioner, exhaustion and distress to the patient, were thus saved. He would make one more remark; it was that, although great force had occasionally been necessary in extracting, he had never seen the smallest injury result to the mother. The patients had recovered as speedily and as well as after ordinary labours.—*British Medical Journal, Aug.* 30, 1862, *p.* 235.

64.—ON VERSION IN CONTRACTED BRIM.

By Dr. E. G. Figg, Bowness.

[The following is intended by the writer to illustrate the superiority of delivery by version over extraction by the long forceps, in cases of incapacity of the pelvic brim.]

M. J., aged twenty-six, a healthy subject, with a pelvis small, but not distorted, had, on three previous occasions, endured a tedious and painful application of the long forceps, resulting in the production of a lifeless child.

On March 8, 1856, I was summoned to attend her, and found my friend Dr. Murray by her side. The os was well dilated, the membranes unbroken, the head incarcerated above the brim. We decided on turning, and by united effort produced a large infant, whose respiration, feeble at first, became natural in half an hour; the mother became rapidly convalescent.

On May 12, 1858, she again solicited my services; the circumstances of her case, at the crisis of my examination, were but a repetition of those of the previous instance. I turned under chloroform, and with the assistance of a neighbour's wife, who pulled at the legs while I manipulated the head, a girl was produced which cried vigorously, being, like its predecessor, uninjured in the process.

Mrs. J.'s next accouchement took place in Ayrshire, her attendant, true to his obstetrical creed as a matter of course, applied the long forceps, and, inevitable consequence, removed a dead infant, which event, however, was surpassed in tragic incident at her next delivery, when her ill-starred progeny was born piecemeal.

To anticipate a recurrence of this disaster, Mrs. J. revisits this locality in the early part of next year, to secure safety by a mode as facile in the hands of a first year's student as in mine.

Perhaps I may with advantage afford a suggestion on Dr. Hewett's reference to difficulty experienced when one foot alone is brought down.

If the fœtus occupy the first or second position (Naegele), I seize the posterior foot, which holding the anterior one in its fold, invariably secures the descent of both.

If the position be the third or fourth, I secure the distal, and not the proximate foot, traction on which inverts the child on a diagonal axis, rather than the longitudinal one of the former case.

In my early attempts on these anterior positions I satisfied myself with the first that met my grasp, only to ensure the complication of the proximate foot and the head occupying the pelvis together, while the distal one and fœtal trunk were yet in the perpendicular. Should the distal foot, in the first instance, prove beyond my reach, I avail myself of the proximate one, producing traction on it, not with the view of thereby completing the version, but so as to exercise an influence on the other, and bring it into the vicinity of my hand.

Let the fact of my having turned more children than any man in the profession lend a little authority to these remarks—a distinction that no one will envy me, remembering the rabid *animus* evinced by the leaders of the London school on the publication of that trait in my practice.—*Med. Times and Gazette, August* 30, 1862, *p.* 236.

65.—ON ANÆSTHESIA IN MIDWIFERY.

By Dr. Thomas Skinner, Liverpool.

An important object of this communication is to introduce some new apparatus for the more safe, effectual, and economical administration of chloroform. For all that I know, the means may be nothing new, but they suggested themselves to me on hearing of the method lately introduced by Professor Simpson, of administering chloroform by drops on a muslin or cambric handkerchief, which method, however advantageous, is subject to two objections, namely, (1,) The difficulty of dropping

the chloroform and of seeing where you are dropping it; and (2,) The difficulty of protecting the patient's face from being irritated by the anæsthetic, even by inunction with olive oil. This inhaling apparatus not only obviates those inconveniences, but I feel certain that it will render the inhalation of chloroform less dangerous and more effectual in smaller quantities, consequently, more economical.

By the old method, I used as much as from one to one and a half fluid ounces an hour, whereas, with my new inhaler and drop-tube I can easily anæsthetise an average case of labour at the rate of half an ounce an hour, which is equal to a saving of about *sixty-five per cent. of chloroform;* no small consideration. For a year back or more, I have never used any other than methylated chloroform, which I find to be quite equal to that prepared from the best rectified spirit, thereby the practice of anæsthetic midwifery is still further economised; and the quantity of chloroform consumed may be still further lessened by withdrawing the inhaler at every expiration of the patient.

The apparatus is extremely simple, and is composed of a mask or inhaler, for receiving and evaporating the drops of chloroform, and a bottle with a peculiar form of drop-tube attached.

1. The inhaler is a mask, the framework of which is of tinned iron or German silver wire. It somewhat resembles a fencing mask, excepting that it is covered with thin coarse domette instead of wire gauze, and that it covers only the lower half of the face. For convenience, it has a movable handle, and is otherwise made to fold up so that it may be carried in the pocket, hat, or case.

2. The drop-tube is a tube of glass about two inches long, sealed at one extremity, so that a silver wire ligature only can pass; it is then thrust through a perforated cord which is inserted into a three or four ounce phial, and it is ready for use. The cork is more durable if covered with white kid leather. (Messrs. Maw and Son have greatly improved this drop-tube by making it entirely of glass.)

On inverting the bottle and drop-tube with chloroform in it, at no single inversion can more than thirty nor less than ten minims escape until it is reinverted. The advantages of such an arrangement will at once suggest themselves. The principle of this simple little invention is, that no more liquid can flow at one inversion, than is sufficient to allow the atmospheric pressure to balance the elastic force of the vapour of chloroform and air within the bottle. It might be called a pneumato-hydraulic regulator of chloroform. I will just add, that this drop-tube will serve for many other equally useful purposes, namely, for dropping collyria, for the administration of medicines in the

form of drops, and as a "poison cork." For such purposes it is only necessary to incline the bottle until it begins to drop, when a child may almost be entrusted to drop laudanum with it. The leather covering over the cork is only requisite with chloroform.

Note.—Messrs. Maw and Son, of 11, Aldersgate-street, London, have engaged to supply the apparatus complete at the following prices.

1. Inhaler in case, with bottle and drop-tube, 11s.
2. Inhaler for carrying inside the hat, with bottle, &c., 8s.

(It is due to Messrs. Maw and Son, to state that they have displayed much mechanical ingenuity in the perfecting of the latter instrument, as well as the drop-tube.)

Specimens may be seen at their establishment, as also in their cases at the International Exhibition, Kensington.

P.S.—I have frequently used the above apparatus to induce the deepest state of anæsthesia during surgical operations, and it has always given me the greatest satisfaction.—*British Med. Journal, Aug.* 2, 1862, *p.* 110.

66.—STATISTICS OF FORCEPS CASES.

By Dr. J. G. Swayne, Physician-Accoucheur to the Bristol General Hospital, and Lecturer on Midwifery at the Bristol Medical School.

[Since he has been in practice the writer has had occasion to use the forceps in forty-five cases. Of these thirty-five were primiparæ. This is to be expected, considering that in most forceps cases there is both increased resistance and diminished uterine power; and the former element is especially present in first labours.]

The short forceps which I employed in most of my cases is a modification of Denman's, but is much shorter in the handle, and longer in the shank; and the blades are more widely separated, so that it has not so great a power of compressing the child's head.

With respect to the causes which rendered the operation necessary, I find that they were—1. A want of expulsive power, combined with a want of room in the pelvis; 2. A want of expulsive power only; 3. A want of room only; 4. Convulsions; 5. Prolapse of the funis. Under the first head, of want of power and room, there were no less than twenty-four cases. The great majority of these—viz., nineteen—were primiparæ; whilst five were multiparæ. Six of the nineteen were over 30 years of age, and three over 40. In most of the twenty-four, the want of room was at the outlet; the increase of resistance

and the diminution of expulsive power progressing *pari passu* until the child's head came to a complete standstill, about the time when it was just touching the perineum. These are the cases which, above all others, are suitable for the use of the short forceps. In one case only was ergot given, and that unsuccessfully. It was given by another practitioner before my arrival, or I should not have sanctioned its use, as I never administer it when there is any mechanical obstacle to be overcome. In a few of the twenty-four instances, the head was arrested in the cavity of the pelvis, and in one very nearly at the brim. The obstacle was a prominent sacrum; but yet I was able to deliver with the short forceps, as the instruments I generally use are rather long in the shank.

Under the second head, of want of power only, there are nine cases. Of these, eight were primiparæ. In one of these, the want of power appeared to result from great general debility dependent on acute bronchitis, combined with over-distension of the uterine fibres from the presence of two dead children and a large quantity of liquor amnii. In another, it arose from the presence of a fibrous tumour in the walls of the uterus. In a third case (a primipara, aged thirty), the want of power appeared to be produced by a very protracted first stage from excessive rigidity of the os uteri. At last a laceration took place in the anterior lip of the os, and the head passed into the vagina; but there was not sufficient power left to expel it. In five of these nine cases, ergot was given in large doses, without effect.

Under the third head, of want of room only, there were seven cases. In three of these, the contraction was chiefly at the pelvic brim, and was caused by a prominent sacrum. Two of these were delivered by the long forceps. In one case, the difficulty appeared to be chiefly caused by the large size of the child, which weighed ten pounds.

The fourth and fifth class of causes were complications rendering prompt delivery necessary. In the fourth class, the complication was convulsions, of which there were four cases; and in the fifth class, prolapse of the cord, of which there was but one.

We next come to the presentations in these forceps cases. Out of the total number of forty-five, there were thirty in which the head presented naturally—*i. e.*, with the occiput towards the left acetabulum. There were nine with the occiput to the right acetabulum, four with the forehead to the right acetabulum, and two with the forehead to the left acetabulum.

We have next to look at the results, both as regards the mother and child. As regards the former, all the patients recovered except two. One of these was a woman whose case I spoke of above. She was a primipara, in labour with twins, and

in a state of extreme debility from a severe attack of bronchitis. She was attended by a midwife, who left her too long in labour before she sent for assistance. When I arrived, she was almost without pain, and in a state of extreme prostration. I delivered the first child with the short forceps; and, finding that it was putrid, and that the second was in the same condition, I delivered the latter by craniotomy in preference, as being an easier operation for the mother. The woman died of exhaustion, six hours afterwards. The other fatal case was a woman to whom I was called by one of my pupils, and who was suffering from icterus when in labour. There was no particular difficulty about the case; but she died of puerperal fever, apparently of the gastro-bilious kind, about six days after. There was nothing in either of these cases to show that death in any way resulted from the use of the forceps. Still, if these two fatal cases are reckoned in, we shall have two deaths to forty-three recoveries, which is rather less than the proportion usually met with in British practice, according to Dr. Churchill's tables. These gave one death in twenty and three-quarters cases as the average mortality attending the use of the forceps in Great Britain.

With respect to the mortality of children in my forty-five cases, I find that there were nine deaths, and thirty-seven children born alive. Of the nine, eight were still-born, three being putrid; and one was born alive, but died two hours after birth. This is rather less than the average mortality amongst children delivered by the forceps, which is stated by Dr. Churchill to be one in four.

I have made no statement as to the duration of the first or or second stage of labour in these cases. As many of them had been under the care of different persons, both medical practitioners and midwives, before I saw them, it is obviously impossible to arrive at anything like accurate information on these points.

The last particulars to be noticed are the various complications which were observed during some of the labours, and the sequelæ which followed others. The first of these which demands our attention is laceration of the perineum. Of this there are seven cases, all of whom, as might be expected, are primiparæ; three of these are aged respectively 30, 32, and 40. Six cases are slight lacerations; whilst the seventh was more severe, the rent reaching as far as, but not extending through, the sphincter ani. Amongst the thirty-five primiparæ, therefore, there are seven cases of slight perineal laceration—a proportion of one in five, which, according to Dr. Snow Beck's estimate of the frequency of that occurrence, is not greater than what is observed in ordinary labour. The other complica-

tions were *post partum* hemorrhage from inertia uteri in two cases, in one of which the hemorrhage was internal. As there were only two instances of this complication, we may fairly conclude that the use of the forceps does not tend to occasion hemorrhage after delivery. As to other complications, there was one case of retained placenta from hour-glass contraction, and one of phlegmasia dolens about a fortnight after delivery. In another case, as already mentioned, there was a laceration of the os uteri before the forceps was used; and, in another, a great portion of the anterior lip of the os uteri and the upper part of the vagina sloughed, and the result was a stricture of the vagina, which I had subsequently to divide. These occurrences are by no means attributable to the use of the forceps, for the operation was soon accomplished, without difficulty; and I believe that, if the forceps had been sooner applied, they would not have happenrd. When I was first called into the patient, the second stage of labour had lasted twenty hours; the head had remained immoveable for eight hours, and she was in a state of great prostration. The only remaining sequelæ are those which have reference to the child. In one instance (one of my first cases, occurring in 1844), the child, nearly a month after delivery, died from suppuration in various joints of the body. The mischief appeared to originate in inflammation of the cerebral sinuses; and this seemed to have been produced by a considerable indentation just over the coronal suture, caused by one of the blades of the forceps. At that time I used Denman's forceps, which has a great compressing power. Another child died convulsed on the third day after delivery, probably from the same cause. In another instance (in 1846), by passing one of the blades of the forceps too far, I hitched it over the chin, and, in extracting, disarticulated the lower jaw at the symphysis. Fortunately, the child was still-born. In fact, the principal drawback to the use of the forceps is, I think, that it may, if not carefully applied, do some injury to the child's head. The chief risk of this is when the head is so high that the ear cannot be reached. I now avoid the danger of compressing the child's head too powerfully, by using a forceps the blades of which are much more widely separated than those of Denman's

As regards the danger to the mother, I think that my own cases show that it is next to nothing; for the two deaths recorded can scarcely in any degree be attributed to the use of the forceps. My own impression of the safety of the forceps is so strong, that I now resort to it more frequently and use it much earlier than I did at the commencement of my practice, when I had an undefined dread of possible consequences which might ensure. But I am thoroughly convinced that all those

consequences, which have been described in thrilling language in various obstetric works, arise entirely from the improper and unskilful use of the instrument—in fact, from its abuse, and not from its use. As a general rule, if the head have been arrested for three hours in the cavity or outlet of the pelvis, I proceed to apply the forceps, believing that this mode of hastening delivery is not only the most useful, but the safest of all the obstetric operations.—*British Medical Journal, Sept.* 6, 1862, *p.* 247.

67.—ON THE MIDWIFERY FORCEPS.

By Dr. Robert Barnes, Physician to the Royal Maternity Charity.

Next to a skilful hand, the possession of a good forceps is of the greatest importance to the practitioner of midwifery. A good forceps is in many cases a substitute for the perforator; and in many others it may save the mother hours of torture, and the dangers that attend upon protracted labour. Those who restrict themselves to the use of the short forceps, or even to a long forceps with the single or cranial curve, must inevitably expose many patients to the dangers of flooding, of convulsions, of protracted labour, of jamming the lower segment of the uterus between the child's head and the sharp pelvic brim; or, to obviate these perils to the mother, they must sacrifice her child. Everyone will grant that craniotomy is the confession of the impotency of our art to save. It ought to be regarded as the last resource. Every effort should be made to improve those instruments and operations which obviate the necessity of resorting to this cruel alternative of destroying the child. The success of these saving operations often, indeed, depends upon good instruments being skilfully employed. Without indulging in the flattering hope that craniotomy will ever be exploded, still I do think that the degree to which this brutal operation shall be minimized must be accepted as a measure of the improvement of obstetric surgery. The great agent of this reduction must be the forceps. And to answer the indications fully, this instrument must be of sufficient length and properly curved to reach the head arrested on the brim of the pelvis, and of sufficient power to exert some compressive action upon the fœtal head to bring it through a moderately contracted space. If you will look at the French forceps, you will understand how it is that in France craniotomy is so rare, and why they pass at once from the forceps to the céphalotribe—an instrument so formidable that it seems only adapted for the most extreme cases of disproportion. Do they never witness abroad those minor degrees of dis-

proportion in which, here, craniotomy is resorted to? Certainly such cases must and do occur. The inference we must draw is, that the forceps is made to do the work of the perforator; that by means of this instrument our brethren in France are enabled to rescue from the perforator a large class of intermediate cases ranging between the normal proportions and the extreme disproportions which call for the cephalotribe or the Cæsarian section.

The French forceps, with its powerful blades and long iron handles, presents a formidable appearance to eyes accustomed to the small, single-handed forceps of this country. If, however, I should ever be tempted to lay aside an instrument which has served me well on many occasions, it will probably be to take up the improved forceps of Dubois or that of Pajot. The great bugbear of English operative midwifery is the absurd dread of possessing powerful instruments. Thus the blades of the forceps are made straight and short; the lock is placed close to the bow of the blades, and the handles are so short that they can only be grasped with one hand—all to carry out the idea that to make a safe instrument, it must be weak or powerless. There is no greater error than this. In the first place, a weak instrument is, by the mere fact of its weakness, restricted to a very limited class of cases. In the second place, if the instrument is weak, it calls for more muscular force on the part of the operator. Now, it is sometimes necessary to keep up a considerable degree of force for some time, and not seldom in a constrained position. Fatigue follows; the operator's muscles become unsteady; the hand loses its nicety of diagnostic touch, and that exactly balanced control over its movements which it is so important to preserve. Under these circumstances, he soon comes to the conclusion that he has used all the force that is justifiable; that the case is not fitted for the forceps, and takes up the horrid perforator; or he runs the risk of doing that mischief to avoid which his forceps was made weak. It is a transparent fallacy to conclude that an instrument is dangerous because it is powerful. If you have an excess of power, you need not use it; certainly you need not abuse it. Would it not be ridiculous to bring down the power of a man to the puny, unsteady strength of a boy, when there is work requring power and skill to be done? Having force to spare, it is more easy to regulate the amount of force you employ; you gain more perfect command over your instrument; you need never exhaust your own muscular power. The golden rule in Midwifery, as in all other affairs, is never to expend unnecessary force. The steam-hammer will strike with a force of many tons when its duty is to weld bars of iron into one mass; but when called upon to crack a nut, it will just break the shell without bruising the kernel. So in obstetric operations you will so exactly graduate

the force at your disposal as to effect your purpose and nothing more. This faculty of accurate graduation depends, I repeat, upon having a reserve of force. Violence is the fault of struggling feebleness, not of conscious power. Moderation must emanate from the will of the operator; it must not be looked for from the imperfection of his instruments. One of the most valuable features of the French forceps is the length of the handles, which admits of grasping by both hands at once. It does not follow that, because of this facility, you are to throw the whole strength of both arms into the work of compression and extraction. The true use of a two-handed instrument is to enable one hand to assist, to relieve, to steady the other. By alternate action, the hands get rest, the muscles preserve their tone, and that accurate sense of resistance which is necessary to guide the surgeon in measuring the degree of force that is called for, or to warn him when to desist. The instrument I now show you, which I have used exclusively for several years, although less powerful than the French forceps, answers similar indications. It is, I believe, as regards the form of the blades, the forceps of Mr. Roberton, of Manchester; but instrument-makers tell me that my instrument is different in other respects. The blades are double-curved, but both the pelvic and the cranial curves are slight; the length of the arc of the cranial bow is seven inches, thus adapting it to that elongation of the fœtal cranium which is commonly the result of slight pelvic contraction and protracted labour; then there is a straight shank an inch and a-half long, and a semi-circular bow, the arc or diameter of which is also an inch and a-half long. This half circle in each blade, when opposed to its fellow, makes a ring. This ring is immediately in front of the lock. The lock is the commencement of the handles, which are four inches and a-quarter long. The handles might be lengthened with advantage. The straight shank and the ring make together a length of three inches between the springing of the bow and the lock. This effectually clears the lock from all risk of entanglement with the labia or perineum. The ring offers a most convenient hold for the forefinger, whilst the handle can be grasped either with the remainder of the same hand, or with the other hand. You have thus essentially a two-handed instrument, which can be worked with great nicety and economy of muscular force. This forceps is equally adapted for arrest at the brim, in the cavity, or near the outlet of the pelvis. It is quite superfluous to encumber yourselves with more than one instrument. If you consider that this forceps is made to seize a head above the brim, and to bring it down through the entire pelvic canal, you will see that it is of necessity fitted for application at any lower point of the pelvis. There are two more practical advantages possessed by this instrument; it adds

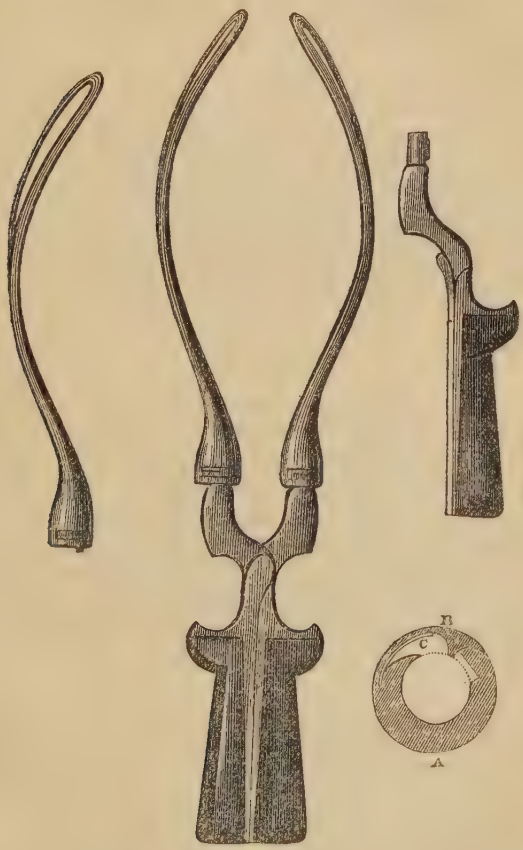
nothing whatever to the risk of laceration of the perineum—a risk which is very serious with the straight forceps; owing to the pelvic curve, the upper or right blade can be introduced without dragging the patient's nates out of bed, or over the edge. The application of the instrument, indeed, requires very little disturbance of the patient. You thus avoid inflicting that terror which attends troublesome preparations. I have saved many children with this forceps, who had been otherwise doomed to perish by craniotomy. I have never seen injury inflicted by it upon the mother, as I have seen by the short forceps even in skilful hands. I entertain a confident opinion that the short straight forceps is destined to disappear from obstetric practice. —*Lancet, July* 12, 1862, *p.* 31.

68.—DR. CAPPIE'S OBSTETRIC FORCEPS.

[The following is taken from Mr. James Reeves Traer's account of the Instruments exhibited at the International Exhibition.]

In this instrument the blades and the handles are separate, the latter being furnished with a protecting piece which accurately fits into a socket contained in the former, the two portions being made to unite by a bayonet-joint. There is a notch on the inner surface of the socket, which receives a small knob which exists on the projecting part (or nipple) of the handle. When this latter has been inserted as far as possible, the small knob is opposite a small slit in the socket, which extends round for about one-fourth of its circumference; by giving the handle a quarter turn, the knob slides along the slit until it rests on the solid part of the socket. To prevent the handle from turning back, a catch falls, and holds it firmly. A section of the joint is shown in the wood-cut. The catch E is considerably levelled, and moves on a pivot, its thin end being kept up by the spring C, which is inserted into the edge of the socket. The spring is composed simply of a flat piece of brass, which possesses sufficient elasticity to keep up the end of the catch, and does not rust nor break easily. When the nipple is first inserted, the knob is opposite the thin end of the catch, and as it is rotated it raises the thick end and depresses the spring. As soon as the knob has passed the edge of the catch, the latter falls in behind it, in consequence of the spring raising the further end. To disjoint the parts it is simply necessary to depress the spring and rotate the handle backwards. When the instrument is being employed, no strain whatever is thrown on the catch; when compression or traction are exercised, all the force being exerted on the solid part of the socket; each handle is made to

fit either of the blades, which are of the form and proportions of those of Simpson's long forceps, the shape of the handles having been modified so as to afford a convenient grasp to the hand. Dr. Cappie claims, and very justly, the advantage of



portability which his instrument possesses; a double pouch of chamois leather for the blades, and a single one for the handles, being all that is required to contain them. So that while it is

as portable as the short forceps, it possesses the leverage and other advantages of the longer instrument, and it also has this further merit, that the blades can be applied either before or after the handles have been attached to them, which now and then allows the instrument to be employed without bringing the body of the patient over the edge of the bed, or even otherwise disturbing her position.—*Med. Times and Gazette, Aug.* 9, 1862, *p.* 148.

69.—*Puglioli's Forceps for Extraction of the Fœtus by the Foot.* (From the Report on the Instruments in the International Exhibition of 1862, by J. R. Traer, Esq.)—Dr. Puglioli's instrument for the extraction of the fœtus by the foot is likely to be very useful. It consists of a pair of articulated forceps, each half of which carries at its extremity, and at right angles to it, a segment of a smooth steel ring; so that when the blades are open the portions of the ring can be applied round a fœtal ankle, and when closed the ring is complete, and traction can be employed.—*Medical Times and Gazette, October* 11, 1862, *p.* 392.

70.—*Christeller's Forceps.* (From the Report of the Instruments in the International Exhibition of 1862, by J. R. Traer, Esq.)—The obstetric forceps of Christeller are shown by Lutter. It is curious that, until the invention of this ingenious instrument, there was no means of ascertaining the exact amount of traction exerted on the fœtal head. By means of Dr. Christeller's forceps this can now be done, for each handle is furnished with a graduated scale, on which a small button moves, in proportion to the force brought to bear on a spring which is contained in each handle, and is in connection with the corresponding blade.—*Medical Times and Gazette, October* 11, 1862, *p.* 392.

71.—*Rizzoli's Perforator.* (From the Report on the Instruments in the International Exhibition of 1862, by J. R. Traer, Esq.)—Professor Rizzoli's perforator is also a very ingenious and useful instrument. It is somewhat lancet-shaped, and when the skull has been perforated, and the brain broken up, the extremity of one of the blades can be made to assume a horizontal position by a simple arrangement, which is easily under the operator's control, and considerable extracting force brought to bear on the remains of the fœtal head.—*Medical Times and Gazette, October* 11, 1862, *p.* 392.

72.—NEW HYSTEROTOME.

[This instrument is one exhibited by Messrs. Whicker and Blaise at the International Exhibition.]

Light, and of great simplicity, it is both safe and efficient. It is safe, inasmuch as the stud projecting on either side prevents it from being introduced too far into the uterus; and it is efficient, for the incision can be made with rapidity, and its depth can be accurately determined by the arrangement shown in the illustration.—*Med. Times and Gazette, June* 28, 1862, *p.* 674.

73.—DOES CHLOROFORM TEND TO INDUCE UTERINE HEMORRHAGE DURING OR AFTER LABOUR?

By Dr. Thomas Skinner, Liverpool.

[Mr. Spender, of Bath, on the 10th of August, consulted Dr. Skinner by letter as to the advisability of giving chloroform in an expected case of labour in which there would be probably much post-partum hemorrhage.]

To this, I replied in the affirmative; stating, at the same time, that there is no case in which I would refuse to give chloroform, nor is there one in which I would not *recommend* its adoption to moderate, if not to annihilate, the pains; *management* will do all the rest. Great plethora and extreme weakness of the heart's action form, in my opinion, the only contraindication. I further stated, from previous observation of two similar cases, that I would not be astonished if there turned out to be *no hemorrhage*, if chloroform were used for the first time in his (Mr. Spender's) case.

The lady was confined on the 17th August, and the following interesting history is from the pen of Mr. Spender. "Total time from the consciousness of the first pain to birth of child, twelve hours and a quarter. Inhalation of chloroform during the last four hours, just up to the deadening of sensibility. The effect of the chloroform inhalation was *to hasten the second stage of labour in a remarkable way.* The placenta soon followed, accompanied with some enormous clots. I got my iced water douche rapidly into action, having already given two doses of

ergot." [These measures had been adopted on previous occasions.] "*Hemorrhage almost instantly stayed.* Afterwards, everything well, and the binder tightened to the utmost degree of force. I consider that the inhalation of chloroform vapour was attended with the most beneficial effects in my patient's case, and the result will give me much more confidence for the future." On the 29th August, Mr. Spender wrote to me to say: "My patient still does well, and will get up to-morrow."

The case speaks for itself. I will only add that I have twice observed exactly similar results in patients prone to *post partum* hemorrhage, where chloroform had not been administered on previous occasions. It is impossible to overvalue the use of the cold or iced water vaginal and uterine douche in such cases, whether chloroform is given or not.—*British Medical Journal, Sept.* 13, 1862, *p.* 292.

74.—*Case of Recovery after Ruptured Vagina during Labour; the Child remaining in the Abdomen three hours and a-half.* By Dr. J. H. Bell, Bradford.—The patient, aged twenty-eight, had previously had normal labours. The labour proceeded apparently naturally at first, but there being cessation of pains for seven hours, ergot was given in two doses of half a drachm each, with half an hour's interval. Shortly after she felt "a tear, a burst, and a flow," and thought the child was born; there was a great discharge of blood. The head was found to have receded considerably, and the hand passed with it into the abdominal cavity. Dr. Bell first saw her three-quarters of an hour after the rupture; the child was in the abdomen, but the patient not suffering from collapse. The forceps were applied, but it was not found possible to deliver thus, and finally the child was turned and extracted. The rent was found to have occurred in the left antero-lateral reflection of the mucous membrane of the vagina, the os uteri being entire. The patient felt "nicely" after the completion of the operation and extraction of the placenta. Subsequently the patient passed safely through a critical illness, pelvic cellulitis having occurred. She was quite well at the end of two months.—*Lancet, Oct.* 11, 1862, *p.* 390.

75.—CASE OF INVERSION OF THE UTERUS OCCURRING SPONTANEOUSLY EIGHTY HOURS AFTER DELIVERY.

By Charles Cowan, Esq., Melrose.

[The patient, aged 40, was delivered with the forceps after a pretty smart labour of twenty-four hours duration. There was slight

hemorrhage half an hour after delivery, but the application of cold caused the uterus to contract firmly again. An hour after this the uterus was found firmly contracted, about the size of a cricket ball. On the evening of the third day after the confinement, Mr. Cowan says,]

About 6 p.m. I got a message requesting me to visit Mrs. T. immediately, as she was not so well. From her appearance in the morning I was scarcely prepared to find such a change as was now presented. Her face had an anxious flushed expression. Her pulse had risen to 112, but her skin was cool,—rather cold in fact. She complained of palpitation, sickness, and a tendency to vomit.

On inquiring both from herself and the nurse if they could assign any reason for this change, I could discover nothing to account for it. I therefore attributed it to derangement of the stomach from her having partaken of a chop, and prescribed half an ounce of castor-oil immediately, to be followed by forty drops of morphia as soon as the bowels were opened. 19th, 8 a.m. Has passed a miserable night. Pulse 130, and very weak; bowels freely opened, but no alleviation of the symptoms. She slept for a few minutes occasionally after the morphia. Is sometimes incoherent, and fancies she sees strange faces in her bedroom. On being asked concerning the discharge, she says that "It is all right,"—a statement corroborated by the nurse. She also says that she is entirely free from pain. Has no appetite and some thirst. She was ordered a raw egg with half an ounce of brandy immediately, chicken soup, half an ounce of wine with twenty drops of morphia every four hours. 3 p.m. Much the same as in the morning. To continue the wine and morphia. 10 p.m. Pulse still 130, and very weak; has slept a few minutes at short intervals, but has been wandering a good deal.

On applying pressure to the abdomen there is no tenderness, and the nurse informs me that the discharge is natural in quantity. The atmosphere of the room, however, is slightly tainted; and on inspecting a napkin, the odour arising from it is anything but agreeable. I now requested to be allowed to examine Mrs. T.; but was refused, as she asserted that there could be nothing wrong there. I consequently had to content myself with ordering the nurse to syringe the genital canal with some tepid water. The bladder, I was given to understand, was freely evacuated several times daily. She was ordered another egg and brandy. To continue the wine every three hours, and the morphia every four hours as formerly.

Being called to a midwifery case during the night, I was unable to visit Mrs. T. until 4 p.m. on the 20th, when I found all the symptoms aggravated. The pulse was about 150, very

weak and thready—one beat running into the other—what, in fact, might be termed a wavy pulse. The fœtor of the lochial discharge was now so very offensive, that I had a very strong suspicion that there existed either in the uterus or in the vaginal passage, some clots in a state of putrefaction. Accordingly, being exceedingly anxious about the safety of my patient, I insisted on an examination. On introducing my finger into the vagina, I found that passage occupied by a foreign body. I had at first great difficulty in satisfying myself as to its nature. It was of too firm consistence for a clot; it was not a polypus; it was not a fibrous tumour. On further examination, I came in contact on one side of it with that peculiar sort of rough surface, which is felt on scraping of an adherent placenta. The mystery was now solved. The tumour was the uterus itself, the rough surface the part of it to which the placenta had been attached, in other words inversion of the uterus had taken place.

The next question which occurred to me was the means by which this state of matters had been brought about. I knew it would be useless to make any direct inquiry for the purpose of eliciting information on this point. I had, therefore, recourse to stratagem, and having sent the nurse out of the room, I said to the patient rather abruptly, "You have been out of bed." She at once admitted the fact, and said that after my visit on Sunday, being desirous of ascertaining her strength, she sent the nurse down stairs on some trifling errand, and during her absence had hurriedly jumped out of bed, walked rapidly to the fireplace, and dropt into a chair completely exhausted. After sitting a minute or so, she made an effort to rise and return to bed, but was unsuccessful, and the nurse just arrived in time to prevent her from falling out of the chair in a fainting fit. Having learned so much, and hearing the nurse ascending the stairs, I left the room and intercepted her in the lobby.

"Now, nurse," I said, "why did you not inform me of this?" The nurse repeated Mrs. T.'s statement, and concluded by saying that with some difficulty she got her into bed, and gave her a little wine, which caused her to rally somewhat; after which, Mrs. T. had strictly forbidden her to mention the occurrence to me.

Consequently, the inversion was not discovered until the alarming symptoms compelled me to insist on an examination. I immediately communicated to Mr. T. the serious nature of the case, and my fears as to the result, and at the same time suggested a consultation, which was at once consented to.

Professor Simpson was accordingly telegraphed for, and arrived in about three hours. On examining the patient, the professor confirmed my diagnosis. The patient was accordingly

placed under chloroform, and in a short time, with little or no difficulty, Dr. Simpson succeeded in returning the uterus to its normal position. At this time the pulse could not be counted, and it was only by placing the stethoscope over the cardiac region, that we could form an idea of the rapidity of the circulation.

She was ordered a large dose of morphia and wine, to be repeated every hour.

21st. 7 a.m. Professor Simpson visited her with me. We found that she had slept some, and the pulse was a little better. She felt more comfortable. Ordered to continue the morphia and wine, and to have as much nourishment as she can take.

To give the details of this case until recovery took place, would occupy too much time, and would besides be unnecessary. Suffice it to say that, by the liberal administration of stimulants and sedatives, with the most nourishing kind of food, Mrs. T. steadily, but slowly approached convalescence. Six weeks elapsed, however, before she could leave her bed, and it was some months ere she could attend to her household duties. Now she enjoys perfect health.

On reviewing the history of this case, it will be seen that it is not difficult to discover the period when the uterus became inverted.

For the first three days after her confinement, we have the patient giving the most satisfactory evidence of speedily attaining convalescence. The pulse becomes natural; the appetite returns; the secretions are normal; the breasts are distended with milk, and the mother rejoices in the prospect of being able to nurse her child. Her sister finding her so well on the Saturday afternoon (two days and a half after delivery), returns home, and on Sunday the patient expresses a wish to get up. What could be more gratifying than this? What could more strongly indicate a rapid restoration to health? So far it appears that all is well; but on Sunday at mid-day, about eighty hours after delivery, a change takes place. Eager to test her strength she leaps out of bed, comes to the ground with some degree of violence, staggers to the fireplace, and falls into a chair in a state of syncope.

There had undoubtedly been mischief, and that of no light character, for from this moment a train of symptoms of the most alarming description followed, becoming hourly more and more serious until the cause was discovered in the inversion of the uterus, and replacement was accomplished. She now again began to show some slight signs of amendment, and we cannot but conclude that the inversion was occasioned by the hurried leap out of bed, especially as the unfavourable symptoms presented themselves then for the first time; and we have further proof of

this in the amelioration of these symptoms, commencing almost as soon as the displacement of the uterus was reduced.

As I have now, I think, sufficiently proved that there was no inversion until the Sunday, and that it then occurred spontaneously, I will not extend my remarks any further.

I have considered it my duty to bring the case before the profession as a remarkable instance of an accident which may occur without any interference on the part of the surgeon, and even during his absence, but which may very unjustly be attributed to rashness or carelessness on his part.—*Edinburgh Medical Journal, June* 1862, *p.* 1106.

76.—CASE OF RUPTURE OF THE UTERUS.

By Dr. Edward Copeman, Physician to the Norfolk and Norwich Hospital.

[Dr. Copeman was sent for to this case in the middle of the night. On arrival he found the patient dead. The following was the history given him by the medical man in attendance.]

Mrs. —— was quite well at 8 p.m., playing with her children in her drawing-room; but, being in hourly expectation of her labour, she told them not to make her laugh so much, as it made her uncomfortable. Shortly after this, she suddenly felt a very powerful and painful movement of the child, became very faint, and could only just manage to get to her bedroom before she was violently sick, having at the same time a good deal of pain in her body. The gentleman who was engaged to attend her, was immediately summoned, and, finding her so faint, very naturally supposed there was hemorrhage, especially as she had suffered from hemorrhage in some of her previous confinements. There was none, however, externally; but on examining, he thought he felt the placenta, and summoned to his assistance a friend and former medical attendant of the patient. When he arrived, he saw at once that the case presented some unusual difficulty; and a message was immediately despatched for me to come without delay. Before I could arrive, matters had become so urgent, that another gentleman, near at hand, was summoned, who thought she was labouring under some unaccountable shock, and that the presentation was a breech, and not placenta. During this time, no serious hemorrhage had occurred, no clots, only bloody water. In an examination, the membranes were ruptured, but very little liquor amnii escaped. She was all this time very faint; and, as stimulants failed to remove the exhaustion under which she laboured, it was thought better to deliver. It was a breech presentation, and not without some difficulty was delivery accomplished. Indeed, when the placenta

was removed, she was *in articulo*, and died almost immediately. She never from the first lost the pain in the abdomen; and, although she had intermittent labour pains, they never pressed the child down upon the os; neither did she ever satisfactorily rally from the first attack of syncope. The child was a male, still-born.

On the following day, we examined the body. The uterus was about half contracted, being nearly two inches in thickness in some places; its structure looked healthy, although pale; and there was no blood in its cavity, except the clots which adhered to the part where the placenta had been attached. There was no blood in the abdomen, nor any breach of continuity to be observed on the exterior of the uterus; but, on examining its interior, we found the uterine structure ruptured longitudinally to the extent of four or five inches, the rent beginning about an inch above the os uteri, and extending upwards in its anterior wall, leaving only the peritoneal covering between it and the abdominal cavity. This was the situation of the original pain; and my opinion is that a sudden violent movement of the child's foot against the wall of the uterus just above where the pubes would make resistance or counterpressure, the uterus itself containing but very little liquor amnii, produced the rupture we discovered; and that this occasioned the persistent syncope and exhaustion so soon followed by a fatal termination. She had not had a child for nearly seven years. One of her labours was followed by puerperal inflammation; several by hemorrhage; and the last but one was premature. Had the structure of the uterus undergone any alteration disposing it more easily to give way, in consequence of the attack of inflammation some years before? We could detect no such lesion; and the rest of the abdomen was healthy, though its various organs had a bleached appearance.—*British Medical Journal*, *June* 21, 1862, *p.* 649.

77.—TWO COMPLICATED CASES OF RUPTURED PERINEUM TREATED BY OPERATION.

Under the care of Dr. Braxton Hicks and T. Bryant, Esq., at Guy's Hospital.

Laceration of the Perineum and Prolapse of the Posterior Wall of the Vagina.—A widow, aged forty, was admitted June 30th, 1860, with extreme prolapse of the posterior wall of the vagina, this prolapse being associated with a severe laceration of the perineum, which had existed many years prior to her admission. The prolapse was so severe, and caused her so much pain and in-

convenience, that she was scarcely able to follow any occupation, and she was willing to submit to anything which would give her a chance of relief.

On July 28th, after a careful examination, Mr. Bryant made a free section of the edges of the perineum and also of the posterior wall of the vagina, removing from the latter a portion of mucous membrane of a ∧ shape; he then brought the edges together by means of wire sutures, passing these, as usual, at least an inch from the margin of the wound. On August 3rd, or the sixth day, the sutures were removed, primary union having taken place.

After a few days the patient was allowed to get up, when, to her great delight, the prolapse of the vagina was found to have been considerably relieved, and, indeed, caused her little inconvenience. A good perineal pad was given to her, and she left the hospital convalescent, having been made, as she expressed it, "quite another woman."

Laceration of the Perineum and Procidentia Uteri.—Ellen S., aged twenty-six, a healthy young woman, was admitted into Guy's Hospital, August 26th, 1861. She had been confined four years previously, her labour having been a difficult one, and attended with rupture of the perineum. Procidentia uteri quickly followed this condition, and became so severe as to render her almost incapable of performing her duties.

On August 31st the perineum was incised by Mr. Bryant, a portion of the posterior wall of the vagina having been removed as in the last case. The edges were adapted by means of wire sutures (these being passed as usual, some distance from the wound's margin), and primary union was obtained. On the ninth day the sutures were removed, complete recovery having taken place. By this operation the uterus was retained within the vagina; and by means of a good, firm perineal pad, she left the hospital comparatively well.

In some clinical remarks Mr. Bryant observed that these two cases well illustrated the benefit which could be afforded to patients suffering from prolapse of the vagina or procidentia of the uterus by operative relief, particularly where these conditions were associated with a ruptured perineum. Perhaps there was but one special point to be observed regarding the operation in these cases, and that was the benefit which could be obtained by removing a portion of the vaginal mucous membrane; in both these cases the advantage was proved to have been very great, and the practice appeared worthy of repetition in like cases.—*Lancet, June* 14, 1862, *p.* 636.

78.—ON THE ORIGIN AND PREVENTION OF PUERPERAL FEVER.

By Dr. I. P. Semmelweis, Pesth.

[Dr. Semmelweis, in a communication to the Editor of the Medical Times and Gazette, quotes the following extracts from his work on "The Etiology, Nature, and Prophylaxis of Puerperal Fever" (published by Hartleben, of Pesth, Vienna, and Leipsic, 1861), as his reply to the remarks and objections of Dr. Hecker.]

The experience which I have acquired during a fifteen years' attendance in three different lying-in-hospitals, in all of which puerperal fever prevailed in a high degree, convinces me that puerperal fever is, without any exception, a fever of absorption, arising from the absorption of decomposed animal organic matter: the first consequence of absorption is decomposition of the blood; the consequences of decomposition of the blood are exudations.

The decomposed animal organic matter, which, when absorbed, causes puerperal fever, is in by far the greater number of cases communicated to individuals from without; and this is infection from without; those are the cases which exhibit puerperal fever epidemics, and those are the cases which can be guarded against.

In some rare cases the decomposed animal organic matter, whose absorption causes puerperal fever, is generated within the limits of the parts affected; and those are cases of self-infection, and those cannot all be guarded against.

One source from which the decomposed animal organic matter is taken, and which, when communicated to individuals from without, produces puerperal fever, is a dead body, of whatever age or sex, no matter what the malady was of which the individual died; it is also indifferent whether it be or not the dead body of a woman who died in childbed; it is only the degree of putrefaction which is here of consequence.

The corpses which were submitted to examination in the first lying in-hospital were of the most heterogenous description.

A second source from which the decomposed animal organic matter is taken, which when communicated to individuals, produces puerperal fever, are sick persons, no matter what their ages or sex, whose maladies are attended in their progress with the generation of decomposed animal organic matter; it being indifferent whether the sick individual had died of puerperal fever or not; it is only the decomposed animal organic matter, produced by the disease, which here deserves consideration.

In the first lying-in ward of an Hospital at Vienna, puerperal fever was produced in October, 1847, by the oozing out of matter

from a medullary cancer of the uterus, and in November, 1847, by the effluvium of a carious knee. In the lying-in ward of the Rochus Hospital, in Pesth, it was the most heterogenous surgical diseases in which running sores produced puerperal fever.

A third source, from which the decomposed animal organic matter is taken, which, when communicated to individuals, produces puerperal fever, are all physiological formations, which when withdrawn from the laws of vitality, have entered into a certain degree of decomposition; it is not what they exhibit, but the degree of putrefaction which is of consequence.

In the years 1856–7 and 1857–8, the physiological blood, and the normal fluxus lochialis, became, in the Pesth Hospital, the etiological momentum of puerperal fever; because having remained a considerable time sticking to the sheets, they entered into decomposition.

The conveyer of the decomposed animal organic matter is the finger of the examiner, the hand of the operator, surgical instruments, bed-clothes, the atmospheric air, sponges, the hands of the midwives and nurses, which come in contact with the excrements of patients dangerously ill, and soon after with women either in labour, or who have just lain in; bed-pans; in a word, whatever is defiled with decomposed animal organic matter, and comes in contact with the genitals of the patients, becomes a conveyor of decomposed animal organic matter.

The place where the decomposed animal organic matter is absorbed is the inner surface of the uterus, from the mouth of the uterus upwards; it being, it consequence of pregnancy, deprived of the mucous membrane, and consequently highly capable of absorption.

The other parts of the genitals, which are covered with the mucous membrane, do not, as long as this is uninjured, absorb, on account of the thick covering of the epithelium; but any part of the genitals which is injured becomes immediately capable of absorption.

With respect to the time when infection takes places, this seldoms happens during pregnancy, because the inner mouth of the uterus is then closed, and consequently the inner absorbing surface of the uterus is inaccessible.

In cases in which the inner mouth of the uterus is open during pregnancy, and in which, consequently, the inner absorbing surface of the uterus is accessible, infection from without can occur even during pregnancy. Infection from without occurs but seldom during pregnancy also on this account, because notwithstanding the inner mouth of the uterus is open, the necessity to probe so far with the examining finger becomes more rare. I have, it is true, neglected to note down how often in the year puerperal fever occurred during pregnancy at the

Vienna Hospital; I think, however, that I am not very far from the truth when I state the number to be twenty. Pregnancy was always interrupted by puerperal fever; a single woman died during pregnancy of puerperal fever; she was delivered by me by means of the Cæsarean section in order to save the child's life.

The time when infection most often occurs is during the opening of the uterus, for then, not only the inner surface is accessible, but also the necessity to probe it with the finger, in order to ascertain the position of the child, is most frequent. As a proof of this, at the time before washings with chlorine were practised, all those women with whom the period of the opening was protracted beyond the usual time died almost without exception of puerperal fever.

During the period of expulsion the inner surface of the uterus is rendered inaccessible by the protruding part of the child; in this period, therefore, infection occurs very rarely. During the removal of the placenta, and during the subsequent confinement, the inner surface of the uterus becomes again accessible, and it is during this time particularly, the atmospheric air penetrating into the genitals, which causes infection, when this air is impregnated with decomposed animal organic matter.

In November, 1847, the air of a room with parturient women, in the first lying-in ward, was impregnated with the exhalations of a carious knee. The air thus impregnated penetrated into the open genitals of the patients, and produced puerperal fever.

During the time required for the expulsion of the placenta and the subsequent confinement, infection can also be caused by the sore places in the genitals caused by the passage of the child coming in contact with the bedclothes, which are defiled with decomposed animal organic matter.

In this manner puerperal fever was produced in the years 1856–7 and 1857–8 in the lying-in ward of the Rhocus Hospital at Pesth.

The decomposed animal organic matter, which, when absorbed, produces puerperal fever, is in some rare cases not communicated to individuals from without, but is generated within the limits of the individual affected, when organic parts which are to be expelled after parturition are decomposed before this happens, and being absorbed, produce puerperal fever through self-infection. The organic parts are *fluxus lochialis* itself—the decidua remnants, blood coagula, which are detained in the uterus. Or the decomposed animal organic matter is the product of a pathological process, as, for instance, in consequence of a forced operation with the forceps, those parts of the genitals which are injured become gangrenous, and the gangrenous parts when absorbed produce puerperal fever through self-infection (p. 266.)

[Professor Hecker makes two objections to Dr. Semmelweis' doctrine, viz., 1st. That it does not explain how the patients fall ill by sets; and 2nd. That it does not explain either how the children died of puerperal fever. With respect to the patients falling ill by sets, and in explanation of this, Dr. Semmelweis states in his work as follows :]

Many patients fell sick singly, *i. e.*, one patient fell ill, and several of her neighbours, both on the right and left side of her, remained in good health; but it happened very often that whole rows as they lay in beds next each other fell sick, without any one of the intermediate patients escaping. (p. 47.)

In consequence of the great number of births which occurred in the first ward for lying-in patients, it often happened that a great many patients were at the same time in the room destined for women in labour. At least twice a-day, during the visit of the Professor in the morning, and during the visit of his assistant in the afternoon, all the women in labour were one after another examined for the instruction of the students. If, then, this examination was performed with hands defiled by decomposed matter derived from corpses, the genitals of many individuals came in contact with decomposed animal organic matter, thereby would the germ of puerperal fever be laid in many persons at the same time. The patients were placed in the room to which to they were removed after parturition in the same order in which they had been delivered; it happened, therefore, that, as they were all delivered pretty much at the same time, they lay in one room in the same order as in the second. As the germ of puerperal fever was laid as they lay in a row in the parturition-room by hands infected from dissecting dead bodies, puerperal fever broke out among them successively in the room to which they were removed after parturition. After washing of hands with chlorine had been introduced, the falling sick in succession did not occur any more. (p. 70.)

[With respect to puerperal fever in children, Dr. Semmelweis quotes the following :—]

All lying-in women in whom the period of dilation was protracted, so as to last twenty-four or forty-eight hours, and even longer, almost all fell ill, without exception, either during parturition or in the first twenty-hour or thirty-six hours after it, and died after a short attack of puerperal fever. But not only these mothers, but all the new-born infants, whether boys or or girls, died of puerperal fever. The appearance of the malady in the children after autopsy was identical with what was observed in the corpses of the mothers.

The explanation why women in labour in whom the period of the dilation was protracted all fell ill, is that they remained

comparatively a longer time in the parturition-room, and consequently were examined by a greater of students than usual; and it is highly probable, or rather certain, that some of them had infected hands. If the decomposition of blood occurs when the child, by means of the placenta, was in communication with the mother, the decomposition of the blood is communicated by the mother to the child, and both die of the same decomposition of the blood.

After the introduction of washing with chlorine, both mother and child remained healthy. Dr. Bednar, then First Physician of the Foundling Hospital at Vienna, says:—"The sepsis of blood in new-born children has now become a great rarity, which we attribute to the happy discovery of Dr. Semmelweis, formerly Assistant-Physician of the Lying-in Hospital at Vienna, who has successfully discovered the cause and the means of preventing puerperal fever, formerly so destructive among women and children" (p. 39.)—*Med. Times and Gazette, June* 7, 1862, *p.* 601.

79.—ON THE RECENT EPIDEMIC OF PUERPERAL FEVER IN DUBLIN.

By Dr. JOHN DENHAM, Master of the Dublin Lying-in-Hospital.

[It is well known that different opinions respecting the contagious nature of Puerperal Fever have been entertained by the most eminent men. The following paper by Dr. Denham, although it in some points contradicts Dr. Semmelweis, Dr. Simpson, and other eminent authorities, does not, in our judgment, overturn the facts which are from time to time published in proof that puerperal fever is one of the most contagious diseases which attacks women, and that it is communicated by morbid poison, either in the air, or about the person of the medical attendant or nurse. We give below a large portion of Dr. Denham's paper, in order that the reader may judge for himself whether or not our own opinion is correct. Dr. Denham proceeds to say:]

I shall briefly allude to the opinions of a few of those who have written on both sides of the question, and then draw some general conclusions elicited by the recent epidemic, and the reconsideration of the subject which has thereby been forced upon me.

Dr. Semelweis, of Pesth, in his book on *The Etiology, Nature, and Prophylaxis of Puerperal Fever*, states that puerperal fever is, without any exception, a fever of absorption, arising from the absorption of decomposed animal matter, which, in far the greater number of cases, is communicated from without, and that these are cases that can be guarded against. In some rare cases the decomposed matter is generated within the limits of

the parts affected, and these are cases of self-infection that cannot all be guarded against. One source of this matter which produces puerperal, is a dead body of whatever age or sex, no matter what the malady was of which the individual died, it is also indifferent whether it be or not the body of a woman who died in child-bed, it is only the degree of putrefraction which is here of consequence. A second source from which the decomposed matter comes is sick persons, no matter what their ages or sex, whose maladies are attended, in their progress, with the generation of decomposed animal organic matter; thus, in the first lying-in ward of an hospital in Vienna, puerperal fever was produced in October, 1847, by the oozing out of matter from the medullary cancer of the uterus, and in November, '47, by the effluvium of a carious knee.

He mentions, as a third source, all the physiological formations which, having been withdrawn from the control of the vital forces, have entered into a certain degree of decomposition; thus in 1856—7, 57-8, the physiological blood, and the normal *fluxus lochialis* became, in the Pesth hospital, the etioligical momentum of puerperal fever.

The place where this matter is absorbed is, he says, the surface of the uterus, from the mouth upwards, it being deprived of its mucous membrane, and consequently highly capable of absorption. The conveyers of this poison are the finger of the examiner, bed clothes, atmospheric air, sponges, hands of nurses, bed pans, &c. The time when infection most occurs is during the opening of the os, as then the necessity to probe it with the finger is most frequent. As a proof of this, at the time before washings with chlorine were practised in Vienna, all those women with whom the period of the opening was protracted beyond the usual time died, almost without exception, of puerperal fever.

He admits having seen at least 20 women attacked with puerperal during pregnancy; that is, I presume, before delivery. He further states, that a single woman died during pregnancy of puerperal fever, and was delivered by him, by means of the Cæsarian section, in order to save the life of the child. It does not appear very distinctly whether he operated before or after death, nor does he inform us whether the child was saved or not.

Dr. Gordon, of Aberdeen, states, that the malady attacked only those women who were attended by a physician or nurse who had previously attended those affected with the disease.

Copland in his Dictionary of Practical Medicine says, the fact of the contagious nature of this disease, is completely set at rest by the above evidence, especially when it is *undisputed* that within the walls of the lying-in hospitals a miasm is often generated as palpable to the senses, and even much more so, than the fumigations used to destroy it, and more deadly than the

plague, if not arrested at its commencement. I may further add, he states, that lying-in hospitals, or even lying-in wards, ought not to be allowed to exist.

Again, he states, the practitioner is now too well informed, or at least, the sources of information, as to this matter, are too open for him to be longer ignorant, that this most deadly of our domestic pestilences, is conveyed from the infected to the healthy, chiefly, and most frequently, by the accoucheur, when it occurs without the walls of a lying-in hospital.

Among other proofs of infection, he mentions a case reported by Dr. Merriman, in the Lancet of May, 1840, where the Dr. states, that he attended the *post mortem* examination of a puerperal case, at 2 o'clock, p.m., but took care not to touch the body; at 9 o'clock the same evening he attended a woman in labour, she was so nearly delivered that he had scarcely anything to do. The next morning she had rigors, and died in forty-eight hours; her infant had erysipelas, and died in two days.

Again, in the more concentrated state of the effluvium, as generated in the crowded wards of a lying-in hospital, I have seen, he writes, females without any complaint, and dead within twenty-four hours afterwards. Again, he says, I believe that the chief sources of puerperal fevers, particularly of their most malignant forms, are lying-in hospitals, in which not only a very large proportion of those who are received become infected, but also from which the infection is carried abroad, not solely by the females who go out, but also by the clothes of the dead, and of those that recover, and by the persons and clothes of the medical attendants. Again, most of the instances in which puerperal fever has become so prevalent, as to be called epidemic, have occurred in lying-in wards, and the disease has been limited to them, unless on some occasions, when the infection has been carried abroad from them. The term epidemic is, therefore, not strictly applicable, the malady being truly endemic. It is not improbable, however, he admits, that certain atmospheric constitutions, &c., may so affect also the form and prevalence of puerperal fever, as to render it not only endemic in lying-in hospitals, but also epidemic, or approaching to this state, in various places in which it may break out.

Privies, next to accoucheurs, he looks upon as one of the principal sources from whence arises the spread of puerperal, and other female complaints; thus, at page 129 he says—"Privies emitting contaminating vapours, I have remarked in several instances to give rise to asthenic, or irritative and spreading inflammation of the vulva, vagina, and cervix uteri of married females, and even also of the rectum." At 167, he says—"It has been shewn above that the poison may be con-

veyed to the uterus or the vagina by contact, by the hands of the accoucheur, or the poisonous miasms or vapours exhaled from foul privies, frequented just before delivery. A gust of foul air on those occasions may so infect the vagina and os uteri as to give rise to all the complications and phenomena of this malady."

Professor Simpson, of Edinburgh, holds strongly the infectious character of the disease, and, I regret to add, makes the doctor bear the sin and disgrace of spreading the disease to a large extent. He says—"We do not believe in this country that the disease is usually propagated directly from individual to individual, but indirectly through the medium of a third person, and that person generally the medical attendant or the nurse." "The disease," he adds, "is often confined to the practice of some one single practitioner or nurse in a town or city;" in proof of which he gives the case of the midwife, reported by Dr. Roberton, of Manchester, where the patients of one nurse alone, out of 12, were attacked, and of whom 16 died in different parts of the city. The disease, he states, may be propagated by the morbid effusions of one puerperal woman when inoculated into another.

2nd. By the secretions from the vagina of a puerperal woman conveyed by the fingers of nurses and midwives.

3rd. By the secretions from other diseases, such as erysipelas; and 4th, by some varieties of febrile exhalations inhaled into the blood of newly-delivered women.

In proof of this last opinion, he alludes to the case of typhus fever mentioned by Dr. Collins, where the woman in the same ward appeared to be infected by her, and died of puerperal fever.

Prof. Simpson further says—Patients during labour may and have been locally inoculated with a *materies morbi* capable of exciting puerperal fever, and this poison is liable to be inoculated into the maternal passages by the fingers of the attendant. In cases in which puerperal fever is thus communicated and produced, two or three days after delivery usually elapse before the disease breaks out, or in other words, there is a latent period like what we see in small-pox and other communicable diseases. And to show with what facility the disease may thus be produced, he describes the internal state of the uterus and vagina after delivery. We have, he says, a wound or solution of continuity on the whole internal surface of the womb, made by the separation of the placenta and the exfoliation of the decidua, and this wound has, opening upon its free surface at the former site of the placenta, the mouths of the numerous arteries and veins.

The vaginal mucous membrane is generally stretched and

abraded during labour, the perineum is often slightly torn, and the whole affords a surface in a condition easily inoculable.

The diminished mortality in the Hospital at Vienna, said to have been produced by obliging the students to use disinfecting agents to their hands before entering the hospital from the dissecting room, has been much dwelt upon, and perhaps with much justice and truth, especially if such students had been engaged in the *post mortem* examination of puerperal women; the purification of the clothes of such students would, however, in my mind, be quite as necessary as that of their hands; but we have yet to learn whether the diminished mortality was so produced, or was merely the result of the cessation of epidemic influences.

And now let us turn to those who take the opposite view of the case.

Dr. Meigs, of Philadelphia, in his work on midwifery, states —"I do not find the least reason to suppose that I have ever conveyed the disease from place to place in any single instance. I have made many necroscopic researches, but never did I suspend my ministry as accoucheur on that account; still I certainly never was the medium of its transmission. I have in numerous instances gone from the bed-side of women dying of child-bed fever, whether sporadic, or in the most malignant degree epidemic, without making my patients sick.

"In a series of labours, 468 in number, and beginning with No. 1, 18 and 19 were affected; so was 31. No. 195 and 259 were sick. No. 291 died; also 293. No. 332, 339, 435, 444, and 445 were attacked.

"Thus 13 cases in all sickened; 3 of these died, 10 recovered. Now if I was the medium of contagion, why did I poison them in the ratio and order above set forth; and why did I not communicate the disease in more than 13 cases out of 468?"

Dr. Meigs also mentions the case of a Dr. Rutter, who seemed to be tracked by the cause of this disease, and who to escape from it, went into quarantine for 10 days, a distance of 35 miles. On his return, he had his head shaved, took a warm bath, procured a new wig, new clothes, new hat, and new boots; he even left his watch and pencil at home. Well, he went to attend a lady who had a very favourable labour, yet was next day assailed by a horrible child-bed fever and died. "I was," says Dr. Meigs "a great deal with her in her illness, but she did not poison me nor my clothes; for although I went on with my practice, I poisoned nobody."

Dr. Churchill, in his truly practical work on midwifery, gives the case mentioned by Gooch, where a man in large practice lost so many patients that he left off for a month, during which time not a case occurred to his partner. He returned; again resumed, and the very first case he attended was attacked with the disease

and died. My friend, Dr. M'Clintock, has declared to me that he was never conscious of having conveyed the disease from the Hospital to a private patient; nor could he bring to his recollection a case in Hospital where a patient in the bed next to a puerperal fever case seemed to be infected by her unfortunate neighbour. So far as my experience has gone, I can safely testify to the same effect. I will next introduce one or two old and esteemed friends, as unwilling, or rather I would say, incidental witnesses on this side of the question.

Dr. Collins, in his valuable report, states that in February, 1829, puerperal fever, which for several months previous had prevailed in the hospital, now increased so much in intensity as to induce him to close the hospital, when the entire house was fumigated, whitewashed, and cleansed in the best possible manner.

From the time this was completed until the termination of his mastership, in 1833, he states he did not lose one patient by this disease, a period of nearly four years.

In Johnston and Sinclair's very able and valuable report of Dr. Shekleton's mastership, they state, that while in 1848 there were 43 cases of puerperal, in '49 there were only 29 cases; in '50, 15; in '51, 10; in '52, 3; in '53, 8; and in '54 11 cases. Total number, 129. Deaths, 75. Recoveries, 54.

Only 2 cases of scarlatina, and 1 of erysipelas occurred during the entire seven years. All 3 were fatal.

Will any one for a moment contend that the immunity from this disease, thus enjoyed by Dr. Collins for four years, resulted merely from whitewashing, fumigating, and cleansing? or will our friends, Drs. Johnston and Sinclair, contend that the absence of puerperal from the years '50 to '54, was the result of any particular mode of practice, or any increase of care and attention on the part of the master and assistants? Should we rather not ascribe it to the absence of epidemic influences, combined with the strict attention to cleanliness and ventilation that has at all times characterized the management of this institution.

We are all familiar with the fact, that there are great varieties in the general character and symptoms that occur in different epidemics of the same disorder; at one time or in one place inflammatory symptoms run high; on another occasion there is an early tendency to debility and sinking. These differences are not to be explained by any variation in the exciting cause, which is a definite poison; nor should they be ascribed, perhaps, to any appreciable quality or agency of the weather at the immediate time; they seem rather to depend upon changes that have been slowly wrought upon the human body, changes probably due to previous conditions of the atmosphere, which have exercised a long and gradual influence upon all the individuals of a community.

The poisons that may enter the system form two distinct classes, inorganic and animal; of the former some are taken into the blood and emerge again from the body unaltered; they may induce changes, and if these changes be salutary, the substances become medicaments; if the changes be injurious or destructive, they are poisons. Other of the inorganic poisons enter into permanent chemical union with the tissues, and, as Liebig says, deprive the organs of the property which appertains to their vital condition, viz.:—that of suffering and effecting transformations. If the organs of which the functions are thus destroyed are vital organs, these poisons are fatal.

But the animal poisons, those at least with which we are more concerned, act in a totally different way, they effect changes in the blood, whereby they are themselves abundantly multiplied or reproduced. This is the old humoral pathology. The ancients attributed various disorders to a fermentation of the animal fluids. The cause of fever, according to Hippocrates, was some morbid matter in the blood, this, by a process of concoction, was brought in a certain number of days into a state in which it was ready for expulsion from the body, it was then thrown off by hemorrhage, sweat, or alvine discharges, or deposited on the surface in the form of abscess or cutaneous eruption. This theory is much the same as that which Liebig is now teaching.

He ascribes the phenomena which succeed the introduction of certain poisons into the blood to a process resembling fementation; this, he says, is but a type of what takes place in other fluids, under analogous circumstances. He maintains that a substance in the act of decomposition, added to a mixed fluid in which its constituents are contained, can reproduce itself in that fluid, in the same manner as new yeast is produced, when yeast is added to liquids containing gluten. Thus, for example, the virus of small-pox causes such a change within the blood, as gives rise to the reproduction of the poison from certain constituents of that fluid; and whilst this process is going on, the natural working of the animal economy is disturbed—the person is ill.

The character and phenomena of puerperal fever, and its inflammatory results agree with those of small-pox, measles, scarlatina, and other so-called disseminated inflammations of M. Chomel in this respect, that whilst originating, as he believes, in different specific infections of the liquids or blood, they all agree with each other in several respects, as that they cannot be excited artificially by the common causes of inflammation, but are developed by specific causes; they are thus secondary inflammations, resulting from a primary morbid diathesis, or alteration of the animal fluids.

With respect to the opinions put forth by Dr. Semmelweis,

of Pesth, namely, that puerperal fever is, without any exception, a fever of absorption from decomposed animal matter, and that the place where the matter is absorbed is the inner surface of the uterus, such poison being conveyed to it, in the great majority of cases, by the fingers of the medical attendant during the first stages of labour, I feel it would only be a waste of time to dwell upon them. He seems entirely to everlook the fact that the disease frequently appears in towns where there are neither lying-in hospitals or dissecting rooms, and in rural districts where medical practitioners are seldom called upon, in midwifery cases, until the patients are, perhaps, beyond recovery. He also forgots that small-pox, measles, and scarlatina, with other infectious diseases, are often propagated by the inhalation of a poisoned atmosphere, where no contact could possibly have taken place.

I may mention that I have lately visited the hospital in Vienna, and that the professor of midwifery, Dr. Braun, informed me that the theory put forward by Dr. Semelweis had been entirely upset during the last outbreak of puerperal. The midwifery hospital in Vienna is divided into two departments—one being devoted to the instruction of medical students, the other being entirely managed by nursetenders. It sō happened that during Dr. Semelweis' residence in Vienna puerperal fever was much more prevalent and fatal in the department allotted to the students than in the others, and upon this circumstance he founded his theory and supposed discovery of prevention by washing the hands with chlorine. Unfortunately for this view of the case, during last winter the disease was more frequent and more fatal in the female department than in that to which the medical students had access.

It is much to be regretted that the writer in Copland's Practical Medicine should have met with such unfavourable specimens of midwifery hospitals as to lead him to hazard such rash statements as he has made. I have been in many such hospitals, but have never yet been able to discover a miasm generated there as palpable to the senses, and even more so than the fumigations used to destroy it, and more deadly than the plague.

Will any one agree with him, that the case given by Dr. Merriman is a proof of infection. He attended a *post mortem* at two o'clock p.m.; took care not to touch the body; at nine o'clock the same evening he attended a lady in her confinement, who was so nearly delivered when he arrived than he had scarcely anything to do. The next morning she had a rigor, and died in forty-eight hours. I would merely ask, through what channel was the poison conveyed in this case, and what was the duration of the period of incubation? In another para-

graph he asserts:—I have seen females in lying-in hospitals, without any complaint, and dead in twenty-four hours afterwards. Here, again, I would ask, how was the infection communicated, and what was the length of the period of incubation? His credulity with respect to the spread of chronic diseases in the vulva, vagina, cervix uteri, and even the rectum of married females, by contaminating vapours from privies has, I confess, shaken my faith in his judgment quite as much as his aphorism that vapours exhaled from foul privies, frequented just before delivery, may induce puerperal fever, with all its complications and phenomena.

Professor Simpson seems to agree, to a large extent, with Dr. Semelweis in thinking that the disease is propagated principally by the local inoculation of a *materies morbi* in the maternal passages, and in support of this he describes the whole inner surface of the uterus as a wound or solution of continuity, and this wound, he states, has, opening upon its free surface at the former site of the placenta, the mouths of numerous arteries and veins. The condition just described I believe to be the exception and not the rule, and is only to be met with where the vessels have been, as it were, accidentally ruptured; this I know, that I have separated the placenta from the uterus, where a woman had died undelivered, without rupturing a single vessel, or spilling a drop of blood. This, however, is a matter rather beside the question, and not bearing much upon the discussion. Professor Simpson states what is more to the point, so far as the question of contagion is concerned in relation to our late epidemic, namely, that in cases where puerperal fever is communicated by the poison being brought into contact with the maternal passages, two or three days usually elapse before the disease breaks out; in other words, there is a latent period like what we see in small-pox and other communicable diseases.

During the late epidemic one patient had a rigor in fourteen hours after delivery, another in sixteen hours, a third in seventeen, and a fourth in twenty hours after. One patient died in thirty-six hours after delivery. Several came in evidently in bad health, with a pulse weak and rapid, and complaining of pain from the moment of delivery. One private patient of my own had a rigor three days before delivery, and constant pain ever after.

Some of the patients who were refused admittance went home, were confined, sickened, and died, although not attended by any one connected with the hospital. It is, I believe, admitted by all that there was an unusual amount of puerperal fever over the city and neigbourhood during the winter; one practitioner admitted having had nine deaths among the poor or middling classes, and another told me he had seen four women die in

puerperal during the winter. When lately in Paris, Munich, and Vienna, I found they had had outbreaks of the disease similar to what we had experienced, only on a much larger and more fatal scale. The Professor at Vienna told me that 36 women had been attacked during the winter, before delivery, and, as I have already stated, that it was most prevalent and most fatal in the department from which the students had been excluded.

The Professor at Munich mentioned to me a most interesting fact connected with the hospital there; it was opened for the reception of patients for the first time in 1859, with new beds, blankets, and sheets, and a new staff of nurses. Yet scarcely was it open until they had a fearful outbreak of puerperal, which has visited them every year since. The epidemic had entirely subsided, both in Munich and Vienna, before my arrival. On asking the Professor at Vienna whether he thought the disease was induced or kept up by the students, his reply was short, but expressive: "We have the students always with us, the puerperal only sometimes."

The same reply is, I think, very appropriate to our own case, where we have the same staff of officers, nurses, and students now, as in the winter; where the same attention to cleansing, fumigation, and whitewashing in the wards is kept up, and where the students are obliged to wash their hands in disinfecting fluid, in every ward, and on every occasion, before taking charge of a patient: but with how different a result now as compared with the epidemic period. Then every patient in the house almost was attacked, now scarcely a quick pulse or a tender belly. During the last three months, we have had only two deaths in 250 deliveries in the house, among which we had cases of placenta previa, difficult labours, and turning cases.

If we admit that there is in all such diseases, whether epidemic or infectious, a latent period, and take into consideration the ordinary period of incubation in small-pox, scarlatina, and such like diseases; and bear in mind, at the same time, the fact, that the symptoms of puerperal fever are often present even before labour comes on, or develope themselves in a very few hours after delivery, I think we shall have forced upon us the conclusion that the poison has not been communicated by the fingers of the medical attendant or that of the pupil on duty, nor yet has it come from the walls of the hospital. In my opinion the poison is often taken into the system (however communicated) perhaps for days before labour sets in, and there lies dormant, being thus kept in this latent condition by some law of the system, the result of the pregnant condition.

May we not, therefore, fairly infer that puerperal fever possesses quite as much, if not more, of the epidemic as of the infectious character, and that we have yet much to learn both as

to the nature of the disease, and the best mode of treating it.—*Dublin Quarterly Journal of Medical Science, Nov.* 1862, *p.* 322.

80.—CASE OF PUERPERAL FEVER.

By Dr. John Murray, M.A., Newton-Stewart.

[There seems a special interest attached to morbid changes communicated to post-partum physiological processes. Some of the numerous forms of disorder are confessedly specific in character, others seem to be ordinary complaints, modified by the peculiar condition of system succeeding parturition. A third class, though originating in causes peculiar to the puerperal state, are in themselves diseases met with independently of that condition. The symptoms observed at the outset in the following case, are those of a rare and fatal form of puerperal fever, termed by Dr. Blundel "hydrosis"; the symptoms later in the case passed into those of pyemia.]

Mrs. F., an active and robust woman was delivered by a midwife of her tenth child on 9th of January last. The labour was completed in about six hours, the placenta having been retained about ten minutes. The hemorrhage was stated to have been moderate in quantity. She appeared for some time to be progressing favourably, and was able to be up on the sixth day. The lochia ceased upon the ninth day. Her breasts continued flaccid, but this circumstance excited no uneasiness, as on former occasions the secretion of milk had not been established until three weeks after delivery. She continued to enjoy good health until the evening of January 22nd, when several rigors were experienced, followed by pyrexial symptoms and severe pain in left infra-mammary region. I saw her for the first time early on the morning of the 23rd, and found her condition to be as follows. The skin was hot and dry, face suffused; respiration hurried and very painful; tongue clammy and covered with thin white fur; pulse 120, full and bounding; bowels had not acted for 24 hours. Severe pain was complained of on pressure in left infra-mammary region, over an area of about four inches in diameter, and in this situation friction murmur was distinctly heard. The chest was resonant throughout.

Eight leeches were immediately applied over the seat of pain, to be followed by fomentations and hot poultices. A dose of black draught was administered, and hydrarg. c. creta. gr. ij., with pulv. ipecac. co. gr. vj. ordered to be taken every eight hours.

January 25th. Pain much less severe. Skin cool and moist; pulse 100, soft. Friction murmur is not heard; but a few

sibilant râles are audible over the left lower lobe anteriorly. Apply a large blister in this situation.

Two days after this date, I was informed that the patient had completely recovered, and did not see her again until February 9th, when I found that for eight days she had been suffering from frequent rigors, followed by profuse perspiration of a faint earthy odour which, instead of affording relief, produced a feeling of deep depression. Four days ago, some pain was felt in the left knee and leg, and the limb was found to be slightly swollen. Has been very restless; has had little sleep and no appetite for food. On examination, leg is found considerably swollen and œdematous. Knee is also slightly and uniformly swollen, and imparts to the finger a doughy sensation. No pain is complained of in pressing together the articular surfaces, but considerable tenderness exists on external aspect of patellar ligament. Severe pain on pressure is also felt in upper part of popliteal space, but none higher up the limb. In no part is there any discolouration of the integument. The abdomen is tympanitic, but no pain or tenderness is complained of in any part of it, nor is uterus felt above pubis. Bowels regular; stools dark and fetid. Urine increased in quantity. Specific gravity 1·020, free from albumen. Pulse 150, soft and feeble. Tongue dry, red, and deeply fissured transversely.

The limb was comfortably supported by pillows in a semiflexed position, and fomentations ordered to knee and leg. She was also ordered half a glass of wine every four hours, together with the following:—

℞. Potass. iod., ℥ij.; tr. lavand. co., ℥iij. Sol. ℥j. ter die.

℞. Quinæ disulph., ℥ss.; acid. sulph. ar., ℥ss.; aq. flor. aurant., ℥iss. Sol. et M. ℥i. 6ta quaque hora.

13th. Rigors and perspiration still continue. The former however, are less frequent, and seldom exceed a feeling of chilliness, but the perspiration is as profuse as before, and its odour more sickly. Leg and knee are more swollen and painful. Has had troublesome cough for two days, and expectorates mucus, tinged with blood. Lower lobe of left lung is found quite dull on percussion, with bronchial respiration, and bronchophony. Pulse 150, feeble. Dry cup over affected part. Omit potass. iod. mixture, and administer following:—

℞. Hydrarg. protiod., gr. xii.; extr. opii., gr. iv. Ft. mass. et div. in pil. xij. Sumat. j. ter die.

16th. Has had no rigors for two days, but still perspires profusely. Cough is almost entirely gone, and chest resonant throughout, but a few submucous râles are heard over left lower lobe; swelling of knee increases slowly, and some pain is complained of on pressure over lower third of femur anteriorly; abdomen is enormously distended and tympanitic; a greenish

discharge of a very fetid odour, escapes from vagina in small quantities; tongue rather more moist and healthy in appearance; pulse 150. Discontinue pills and resume potass. iod.

20th. General health is improving. Is now able to take a small quantity of food, with a bottle of porter and a pint of wine daily; tongue moist and clean.

24th. Knee has increased much in size, and fluctuation is obscurely felt; appetite improving; pulse 140, firmer.

March 7th. Knee is still more enlarged, rounded, and distinctly fluctuant. Complains now of frequent startings in limb, and severe pain in left groin, not increased by pressure, but rendered excruciating by the slightest motion. General health, however, continues to improve; bowels regular, and evacuations healthy.

18th. Until two days ago, patient continued to gain strength, but since that time she has not improved, and the abscess is increasing rapidly in size. I therefore opened it on inner and posterior aspect of the joint, by a longitudinal incision two inches in length. About a quart of tolerably healthy pus was evacuated. Continue fomentations.

21st. A considerable quantity of pus has escaped through the opening, but it is daily diminishing. A large abscess on left hip was to-day discovered and opened. Left leg is rather more swollen and has a doughy feel, but no fluctuation is perceived. Right thigh and leg have now become somewhat swollen and œdematous. The patient's appetite is excellent, but she has acquired an aversion to alcohol in any form, and indeed it does not in her present state appear necessary. The discharge from vagina has ceased.

29th. Left leg still more swollen, and obscure fluctuations discovered in calf. Several suppurating glands in upper part of right thigh incised, and about three ounces of healthy pus discharged; they had caused little or no pain. Swelling of knee has almost quite subsided, and no pain is yet felt on pressing together the articular surfaces, but a small spot external to patellar ligament presents a red discolouration, and is very tender on pressure. Startings of limb are less frequent, and occasion much less pain in groin.

April 3rd. Deep fluctuation is distinctly felt in the left leg from immediately below knee to ankle. On pressure in this situation, pus escapes with considerable freedom through the incision in knee. I made an incision two inches in length along the inner border of gastrocnemius, and on carrying this to a depth of about one and a half inches a large quantity of sanious pus was discharged. I introduced my finger into the wound, and could feel no bone, but found the cavity of the

abscess to be situated beneath the gastrocnemius and soleus. Foment.

7th. Incisions in right groin and left hip have healed. Very little pus can now be obtained from knee, but a profuse discharge has been maintained from leg, which is much diminished in size, though the integumental tissues are still infiltrated to a great degree. A bandage was applied from toes to knee, an opening being left in the opposite wound. Right leg was also bandaged.

22nd. Incision in leg has healed, and the œdema has almost disappeared. The discharge from knee is gradually diminishing, and has assumed more of a serous character; acute tenderness is, however, still complained of in the spot already alluded to. A moxa was employed in this situation.

May 7th. Patient's health is much improved; tympanitis quite gone. Her appetite is excellent, and she sleeps well at night; pulse 120. Very little pain or tenderness is felt in knee, except when the joint is disturbed. The issue is still discharging.

June 5th. Patient has continued to improve in every respect; she has regained considerable strength and feels no pain except when the knee is disturbed; and even then it is so much less than formerly, that she has consented to allow the limb to be extended on a splint. The knee has almost healed, and the discharge from it, which is almost free from pus, does not amount to more than a drachm daily. The swelling in right leg has subsided to such a degree, that she is able to move it with considerable freedom; pulse 100, good.

At the commencement of this case there was no indication of its being other than one of simple acute pleurisy. The symptoms yielded readily to treatment, and on the third day the patient had apparently almost quite recovered. She continued to progress favourably, complaining only of some languor for four days, when alarm was again excited by the return and persistence of rigors. Though not individually very severe, the patient became rapidly exhausted by the frequent recurrence of these, and still more by the profuse perspiration by which they were succeeded. The absence of a critical character in this evacuation, its peculiar earthy odour, and the increased secretion of urine, constitute a group of symptoms characteristic of the disease first termed by Blundel "hydrosis" or "hydrotic fever." These symptoms continued for a considerable period to form the predominant feature in the case; and, indeed, it was not until they had materially decreased in severity that the condition of the knee and leg was such as to cause much solicitude. On their subsidence, however, matters assumed a different aspect. It soon became apparent that suppuration of the knee-joint was imminent, and the occurrence of this, together with the extensive

formations of pus in other situations, appear to entitle the case to rank as one of, so-called, puerperal pyemia.

The question now arises as to whether all or any of the diseases under which this patient successively laboured, were due to puerperal causes. It may without hesitation be affirmed, that her illness was at least partially due to these influences. There is no case on record, so far as I am aware, in which the symptoms of hydrosis occurred independently of the puerperal condition; while that the uterus, if not the origin of the symptoms, at least participated in the morbid action, is shown by the fetid discharge which issued from the vagina. The pleuritic attack at the commencement of the illness may, or may not, have been dependent upon uterine disease. It is possible this may have been the first indication of the tendency, which was subsequently developed, to inflammation of the fibrous and serous structures. Another possible explanation is afforded by the pathological fact, that in many fatal cases of hydrosis uterine phlebitis is found to have existed. From one of the uterine veins, then, a small clot may have escaped into the general circulation, and, by occluding peripheral ramification of the pulmonary artery, given rise to symptoms of pleurisy. It is not improbable, however, that this affection was quite independent of the specific causes which undoubtedly were in operation at a later period.

With reference to the extensive suppuration which followed the symptoms of hydrosis, I have adopted the term pyemia rather from a regard to its conventional use than from an idea that it expresses the pathology of the affection. In the absence of any appearance of phlebitis or obstruction of the circulation at any point, I am inclined to consider the inflammatory action to have been of the erysipelatous character, not unfrequently met with in puerperal patients, and to have been at least partly attributable to the extreme prostration caused by the previous disease.

Little need be said regarding the treatment adopted. Tonics, carminatives, and stimulants were clearly indicated and freely administered on my third visit, and with the exception of iodide of potassium constituted the whole of the constitutional treatment. Free openings were made whenever fluctuation was clearly perceived, except in the case of the knee-joint, which from a fear that in her weak state the discharge might prove too exhausting, I delayed opening as long as possible.—*Glasgow Medical Journal, July*, 1862, *p.* 151.

81.—*Tannin in Puerperal Pyæmia.*—M. Woillez has communicated two cases to the Hospital Medical Society, in which the internal administration of tannin has proved very serviceable in puerperal purulent resorption. The general febrile symptoms

coming on five or six days after delivery, were followed by multiple subcutaneous abscesses, especially in the vicinity of the joints. Sulphate of quinine seemed rather to aggravate than relieve the symptoms, but tannin, given to the extent of nine grains per diem, acted very beneficially.—*Gaz. des Hôp.—Med. Times and Gazette, Aug.* 9, 1862, *p.* 149.

82.—CASE OF OVARIOTOMY—REMOVAL OF A LARGE PORTION OF OMENTUM.—RECOVERY.

By Dr. Edward Dewes, Physician to the Coventry and Warwickshire Hospital.

[The patient was twenty-three years of age. There had been repeated inflammatory attacks since the discovery of the disease, three months before the operation. She was tapped four weeks before the operation, when upwards of five quarts of dark-coloured highly albuminous fluid were evacuated. The operation was performed by Mr. John Clay, of Birmingham, on April 1st.]

The bowels and bladder having been emptied, the patient was quickly placed under the influence of chloroform. An incision, four inches long, was made in the linea alba, midway between the umbilicus and the symphysis pubis. The layers of peritoneum were very much thickened, and were closely adherent to each other as well as to the sac itself, so as to render it a matter of extreme nicety and difficulty to bring the latter fully into view. The sac was then tapped, and several smaller ones emptied of their fluid contents as the mass was drawn forward. The tumour was universally adherent to the abdominal parietes, the adhesions being very strong on the right side, they were, however, separated by the hand alone. It was necessary at this stage to enlarge the aperture in the abdominal walls about an inch and a-half, as it was insufficient for the passage of the tumour. Upon examining the tumour after its extraction, and before the pedicle was secured, a large portion of omentum was found spread out fan-like over its upper and anterior surface to which it was closely adherent, as it had also been to the abdominal walls, and in extracting the tumour, the structure of the omentum had been very much torn, and numbers of its vessels were now bleeding profusely. The question now arose as to the best mode of dealing with the wounded omentum; if it had been peeled off from the tumour and returned within the abdomen, fatal hemorrhage would have followed inevitably, and the number of bleeding vessels precluded the idea of ligaturing them. Mr. Clay had provided himself with an instrument, a species of clam, which he had invented for dividing adhesions, had they proved too strong for separation by the hand alone,

and he now adopted the bold proceeding of seizing the omentum between its blades and separating the wounded portion by the actual cautery. The piece thus removed measured nine inches long and seven wide.

The pedicle, which was very long, was easily secured by a clamp, and the tumour cut away. The cavity of the abdomen was then carefully cleaned out with a sponge, and the wound brought together by two deep and three superficial silver wire sutures, the former being carried through the whole thickness of the abdominal wall including the peritoneum. The pedicle with the clamp on was secured at the lower angle of the wound.

There was some vomiting immediately after the operation, which was evidently due to the effects of the chloroform. The pulse was 135, small and feeble. A tablespoonful of champagne was given every hour, and she was allowed to suck ice at discretion. The catheter to be passed every four hours, and injections of beef-tea, brandy, and laudanum administered at similar periods. It is unnecessary to give a daily report. The above measures were rigidly enforced, all food being strictly forbidden for the first four days, on the fifth a little chicken panada was ordered to be given every two hours with the wine. Not a grain of opium or other medicine was administered throughout, except in the injections. On the fourth day the clamp was removed, on the evening of the fifth one of the deep and one of the superficial sutures, the other deep one on the sixth, and the last superficial not until the ninth day.

The bowels acted for the first time on the fifth day after an enema of warm water. Some abdominal pain and tympanitis appeared on the second day, but were confined to the region of the transverse and descending colon.

After the evacuation of its fluid contents the tumour weighed upwards of four pounds. and was of the pseudo-colloid variety, composed of various cysts varying greatly in size, whose walls consisted of firm fibrous tissue. The fluid contents were estimated at eleven pints.

Menstruation returned on May 22nd, at which date the patient's health was perfectly re-established. It may truly be said that she recovered without a bad symptom.

The steps of the operation were those laid down by Mr. Spencer Wells, of making the abdominal incision as small as was compatible with the passage of the tumour, in securing the pedicle externally, and in the use of silver wire sutures, two of which were passed through the abdominal parietes so as to include the peritoneum, thus securing the peritoneal cavity from the entrance of pus during the healing of the wound. I would, however, particularly draw the attention of the profession to the

bold and eminently successful manner of dealing with so large a portion of wounded omentum which was here adopted,

The omentum had been compressed between the tumour and the abdominal parietes, and had during the prevalence of the previous inflammatory attacks acquired the most intimate adhesion to both surfaces, so that, during the withdrawal of the tumour, the structure of the omentum had unavoidably been ruptured to such an extent as to render ligature of its numerous bleeding vessels simply impossible, and it was in this unforeseen difficulty that the ready resources of the operator were most conspicuous.

So far as it is justifiable to draw conclusions from a single instance, it is fair to infer that the eminently successful result of this bold measure will call imperatively for its adoption in all future cases, either of ovariotomy or hernia, in which it becomes necessary to remove portions of the omentum.

The complete immunity from peritonitis which characterised the progress of this case subsequent to the operation, was probably due to the altered character of the membrane, each layer of which was at least four times its normal thickness, and was otherwise much changed in structure.—*Med. Times and Gazette, June* 14, 1862, *p.* 611.

83.—ON OVARIOTOMY.

By Dr. W. Tyler Smith, and T. Spencer Wells, Esq.

[In a paper read before the Obstetrical Society of London, Dr. Tyler Smith related four additional cases of ovariotomy, two of which terminated fatally, and two recovered. One of the cases is given as follows:—]

Polycystic disease of the left ovary; operation; recovery.—Mrs. H., aged fifty-eight, was first tapped and pressure applied. Two cysts were emptied, but a considerable quantity of solid matter still remained. After the tumours had refilled, the operation was decided on, and performed in the presence of Professor Nélaton. The tumour was removed by a small incision. It was adherent to the omentum and the abdominal walls. The pedicle was slight, and after being tied with a silk ligature the pedicle and the ligature were cut off as short as possible, and dropped into the abdomen. The wound was then closed entirely. It healed by the first intention. There was not a bad symptom, and in ten days she was convalescent. This is the second successful case in which the author has returned the pedicle and ligature into the abdomen.

Thus, up to the date of the paper, the author has performed

ovariotomy in twelve cases. Of these, three have died, and nine have perfectly recovered. One of them has since become pregnant.

Mr. Spencer Wells said that he had been especially interested during the reading of the paper by the account of the two cases in which the pelvic adhesions had been so extensive, and by the mode in which the author had secured the pedicle in two other cases. He (Mr. Wells) felt that those who were learning how to lessen the mortality after ovariotomy had no more difficult problem to solve than the best way to deal with the pedicle. The fact that the author had in two successful cases tied the pedicle and returned it, with the ligature cut off short, into the peritoneal cavity, leaving the ligature and the portion of pedicle which is strangulated within that cavity, and closing the wound entirely, was very surprising; but it taught a very important lesson; and if it did not lead him (Mr. Wells) to follow the example so set without modification, it would certainly encourage him, in any suitable case, to tie the vessels only (not the entire pedicle) with wire, to cut off the ligatures short, return the pedicle, and close the wound. With regard to the pelvic adhesions, he would remark that he looked upon them as one of the most serious indications against ovariotomy. He had several times refuse to operate where dislocation of the uterus and the presence of fixed portions of an ovarian tumour between the uterus and rectum or the uterus and bladder had been detected; and in cases in which the patients had died of the natural progress of the disease the justice of the decision had been proved. In one case, the rectum, uterus, cyst, and bladder were found so joined together that it was almost impossible to separate them after death. Occasionally, it was extremely difficult to say whether portions of ovarian tumours in the pelvis were adhering there, or were simply pressed downwards and non-adherent. He had two cases of this kind now in the Samaritan Hospital, and he intended to tap the abdominal cysts to see if (when those were empty) the pelvic portion could be pushed upwards. In this manner he had cleared up the diagnosis in other cases. It was only by carefully observing various cases that we could arrive at the knowledge of the conditions which render ovariotomy advisable or otherwise; but we are now beginning to learn this, and to be able to say to a patient or her friends either that the case is one where recovery may be hoped for very confidently, or one where the prospect of success or failure was about equal, or one where the conditions are so unfavourable that no reasonable hope of success could be entertained. Among these conditions he was disposed to class pelvic adhesions. At least this was the result of his own experience.

The profession in general, and those who were endeavouring to diminish the mortality after ovariotomy in particular, were much indebted to the author for this addition to their knowledge.—*Lancet, July* 26, 1862, *p.* 90.

84.—CASE OF OVARIOTOMY.

By T. Spencer Wells, Esq., Surgeon to the Samaritan Hospital.

Multilocular Ovarian Cyst—Ovariotomy—Ligature of Omental Vessels—Recovery.—The patient, aged twenty, single, was admitted on July 5th, 1862.

State on admission.—She was pale and extremely emaciated, but cheerful. The whole abdomen was occupied by a large multilocular ovarian tumour, which extended upwards beneath the false ribs, pushing them outwards and the ensiform cartilage upwards. The girth at the umbilicus was 44½ inches, and the distance from ensiform cartilage to symphysis pubis 22½ inches —the umbilicus being exactly midway between the two points. Her breathing was much oppressed. She was frequently sick, and locomotion was very difficult. The uterus was central, normal, and movable.

Operation.—July 5. Mr. Parson having administered chloroform (Sir Joseph Olliffe, and Drs. Bache and Michon, of Paris, and many other visitors, being present), Mr. Wells first exposed the cyst by an incision six inches long, extending downwards from one inch below the umbilicus. Some extensive parietal adhesions, passing quite up to the false ribs, were then separated by the hand. One large cyst was tapped, emptied, and the cyst wall was tied around the canula. A second cyst was tapped through the first without withdrawing the canula. A large semi-solid mass above made it then necessary to extend the incision to two inches above the umbilicus. A large piece of omentum, and another of mesentery connected with a loop of intestine, were then separated by the hand from the upper portion of the tumour, and were held outside to prevent bleeding. The tumour was then withdrawn. The pedicle was secured by a clamp about two inches from the right side of the uterus, and the tumour was cut away. The left ovary was found to be healthy. Several vessels in the omentum and mesentery bleeding freely, four of them were stopped by torsion, and a large piece of torn omentum having been separated by the instruments described by Mr. Clay, of Birmingham, in a recent number of the Medical Times and Gazette, three arteries (which still bled freely on the surface which had been rubbed through) were tied by very fine silk. The ligatures were cut off close and returned

with the omentum. The peritoneal cavity was then carefully sponged free from all blood and ovarian fluid, and the wound was closed by harelip pins (passing through the whole thickness of the abdominal walls, including the peritoneum) and by superficial wire sutures. The fluid collected weighed twenty-seven and a-half pounds, the tumour eleven pounds, and as some pints of fluid escaped, the tumour must have weighed, when entire, upwards of forty pounds.

The patient rallied well after the operation. She had two small opiates during the night. Healthy reaction came on, bu without pain or vomiting, and perspiration was free. The harelip pins were removed three days after operation, and the clamp on the fifth day. The bowels acted naturally on the eighth day. By the eleventh day nearly the whole of the slough caused by the clamp had separated, and the wound was nearly closed. On the 22nd (seventeen days after the operation) she was exposed to a draught of cold air when perspiring. This was followed by sickness, abdominal pain, rapid pulse, and hurried breathing, which lasted two days, but went off with free perspiration. After this, recovery was uninterrupted. She left the hospital in good health a month after operation; having been out for a walk some days before. She then went to Margate, and has been seen since her return, quite strong and rapidly gaining flesh.—*Med. Times and Gazette, Sept.* 6, 1862, *p.* 251.

85.—CASE OF OVARIOTOMY.

By W. Fergusson, Esq., Surgeon to King's College Hospital.

[The present case (which was the first in which ovariotomy had been performed at King's College Hospital,) was an example of an enormous ovarian tumour which had attained to a great size within a few months. Its progress was so rapid that life would soon have been destroyed, as it was not an instance where tapping would have proved of any service. The amount of adhesions was uncertain. Before operation the circumference of the abdomen was forty-three inches and a half. The patient, aged 19, single, was admitted July 8th, 1862.]

On August 9th she was taken to the operating-theatre, and placed under the influence of chloroform, to undergo ovariotomy. Mr. Fergusson commenced the operation by making an incision about two inches in length, in the middle line, above the umbilicus, from which a quantity of serous fluid escaped. The operator then passed his fingers into the opening, and ascertained that there were no adhesions as far as his fingers would reach. The incision was now cautiously lengthened, both upwards and downwards, by means of a curved, probe-pointed bistoury,

making it about six or seven inches in length, and again a large quantity of serous fluid escaped. Mr. Fergusson next passed his hand into the abdominal cavity, and found that there were no adhesions whatever. One of the cysts composing the tumour was then punctured with a large trocar, but only a little fluid escaped, and the same occurred when punctures were made in other situations. The contents of the cysts appeared to be of a gelatinous consistence, and the size of the mass was but slightly reduced by these attempts to tap it. Mr. Fergusson now turned out the tumour from the abdomen, and had it supported by assistants. By this means the pedicle was exposed, and it was found to be comparatively small, being only about the thickness of three fingers, and about four inches in length. Through the middle of the pedicle the operator passed a long straight needle set in a handle, and then arming it with a stout double silver wire, he withdrew it, and endeavoured to strangulate the pedicle in two lateral halves; but finding the wire did not answer the purpose effectually, he removed it, and repeated the process with whipcord. A second ligature was then passed entirely around the pedicle immediately below the former one, and drawn as tight as possible. The tumour was then cut off close to the ligatures. A second tumour much smaller than the first, was now observed lying in the right iliac fossa. It consisted of a single cyst of a bluish colour, and full of fluid. It was attached by a pedicle two or three inches in length, and about the thickness of the thumb. This was ligatured in two halves in the same way as the other, and the tumour cut off. The larger tumour weighed fifteen pounds and three quarters, the smaller one exactly two pounds. The cavity of the abdomen was then carefully sponged, so as to remove the fluid which had collected there. The edges of the wound were then brought together, and united by silk sutures, the pedicles being left in the abdominal cavity, and the ligatures brought out at the lower end of the wound. Pads of lint were then applied along the edges of the incision, and a bandage around the belly. On being removed to her bed the patient's pulse was 140. She complained of slight smarting pain in the seat of the incision. Ordered half a grain of morphia, and brandy was given at intervals.—Nine p.m. : pulse 150. She throws up the brandy and all that is given her. Ordered to suck ice constantly, and to take another dose of the morphia.

Aug. 10th. Pulse 130; she slept tolerably well last night; complains of no pain; tongue clean; bowels not been opened; seems very thirsty; passes her urine without difficulty. Since the operation she has been taking half an ounce of brandy every hour. Her diet consists chiefly of beef tea, bread, and eggs, with lemonade to allay thirst. Vomiting still continues at

intervals. In the evening she was ordered half a grain of morphia, the dose to be repeated in the morning.

11th. Passed a comfortable night; pulse 120. Ordered twenty drops of tincture of opium every three hours. She continues very thirsty, and as she craved for beer, she was allowed to have a glass in the evening. The allowance of brandy was reduced to ten ounces in twenty-four hours.

12th. Pulse 136; bowels have not acted since the operation. She complains of a little smarting pain in the wound, but she can bear moderate pressure on the abdomen. Tongue rather brown and dry. In the afternoon Mr. Fergusson took out the sutures.

13th. Pulse 126; she has had a very comfortable night; she is still sick occasionally; her lips are rather dry, and her tongue slightly brown at the edges; there is a thin discharge from the lower end of the wound. Ordered a draught containing three minims of hydrocyanic acid and twenty drops of tincture of opium every three hours. The sickness is not attended with any pain. She continues to suck ice constantly.

14th. Pulse 130. Last night her bowels were opened for the first time since the operation. There is no pain on pressing the abdomen; the greater part of the wound has healed by the first intention; sickness continues; she vomits three or four times a day; sucks ice almost constantly; tongue dry and rather brown. In the afternoon her bowels were slightly moved again.

15th. The bowels have been moved during the night; indeed there is a tendency to diarrhœa. The half-pint of beer which she was ordered every day is to be discontinued. Occasional vomiting; tongue brown and dry. In the afternoon her bowels acted again; she was then ordered a draught containing ten minims of tincture of krameria and one ounce of decoction of hæmatoxylon after every liquid stool. Some aphthous spots have appeared on the tongue.

16th. Bowels not been opened since yesterday afternoon; tongue still brown; complains of a little pain in the abdomen. There is no discharge from the wound. Pulse 130. She seems thinner and weaker than she was three days ago. Her legs and feet are rather œdematous. The wound dressed as before, and her medicine was changed for a draught containing twenty drops of tincture of opium, one grain of quinine, and five drops of dilute sulphuric acid, three times a day; an enema was also ordered—five grains of quinine to be mixed with four ounces of beef tea—to be repeated every two hours. There are more aphthous spots on the lips and tongue.

17th. Pulse 138. Her bowels were slightly opened this morning. The injections have all been retained.

18th. Last night the house surgeon was called up, as the patient seemed to be sinking. Pulse 100, very faint and fluttering; respiration slow and feeble; skin cold and moist. Stimulants were given, and she improved. In the morning she seemed better.

19th. Pulse 110. Bowels not been moved since yesterday morning. To day one of the whipcord ligatures came away. A quantity of foul discharge was squeezed from the wound.

20th. The upper part of the wound is quite healed, only an inch of the lower end remaining open. This is dressed three times a day, the discharge being free and offensive.

21st. The remaining ligatures have come away, the discharge has improved in character, the tongue is becoming cleaner, and the aphthous spots are disappearing.

23rd. Pulse 95. There are still some aphthous spots on the tongue and lips. She seems to be gaining strength; makes no complaint of pain; appetite improving; sleeps well.

24th. Last night her bowels were moved twice, with tendency to diarrhœa. The wound continues to be dressed three times a day. There is a good deal of discharge of a healthy character.

26th. This morning, at half-past nine, an unfavourable change took place. The house-surgeon was called to her suddenly, and found her in great pain, with an anxious expression of countenance. Her face was of a dull, leaden hue. The surface of the body was cold and clammy. The chest and belly were covered with sudamina. The abdomen was distended and tympanitic. Pulse feeble and fluttering. These symptoms came on quite suddenly. She slept well in the night, and appeared to be in her usual health at eight o'clock a.m. Stimulants, &c., were given, and everything was done to ward off the symptoms of collapse, but without avail, and she died at three o'clock p.m.

Autopsy, twenty-four hours after death.—The intestines were found matted together and to the walls of the abdomen. The whole length of the intestine was carefully examined, but no perforation was found. The two pedicles were healthy in appearance, as if they were granulating. The small intestine contained a little yellowish fluid. The large intestine was found perfectly empty, and distended with flatus. The uterus was small, hard, and contracted. In the cellular tissue, at the back of the pelvis, between the rectum and uterus, was a large abscess, which contained about two pints of pus, and which had burst by a small opening, and discharged some of its contents into the peritoneal cavity.—*Lancet, Oct.* 18, 1862, *p.* 416.

86.—*Mr. Spencer Wells's Syphon Trocar for Ovariotomy and other Purposes.*—[This instrument is one lately made by Messrs. Weiss for Mr. Spencer Wells.]—It consists of a canula, in which, instead of the ordinary solid rod, a hollow tube slides. This tube is sharpened at the end like a tubular needle. The instrument is introduced in the ordinary manner, and the sharp tube is then withdrawn by the thumb. The fluid flows along the canula to an elastic tube, which may be bent to form the long and short branches of a syphon; and the fluid continues to flow so long as the short branch is immersed, while no air can enter. If suction power be wanted, a syringe may be used instead of the simple tube. The addition of a grooved ferrule outside the canula completes the instrument for ovariotomy. The cyst, as it is emptied, is tied on the ferrule to prevent the escape of fluid, and to assist in drawing the cyst outwards. If other cysts require tapping, the sharp tube can be immediately projected and withdrawn. The power of doing this with one hand only is a great convenience, not only in performing ovariotomy, but in tapping collections of fluids through the vagina or rectum.

Instruments of various sizes are made by Messrs. Weiss.—*Med. Times and Gazette, July* 5, 1862, *p.* 20.

87.—*Dr. Aveling's "Polyptrite" for Removal of Uterine Polypi.*—[Dr. Aveling, of Sheffield, has invented an instrument which he calls a "polyptrite," for the purpose of crushing through the necks of uterine polypi.]—It consists of a hook, a slide, and a screw. In using the instrument, the hook alone is first passed over the neck of the polypus; the slide is then pushed up as far as it can be made to go by the hand; and then, by means of the screw, the operation is completed by forcing the blunt blade of the slide into the concavity of the hook and through the neck of the polypus. Dr. Aveling stated that he and others who had used the polyptrite had found its application easy, rapid, and safe, and in no instance had he heard of the slightest hemorrhage having followed its employment. The present instrument (which may be had from Messrs. Weiss) be considered a great improvement on two other instruments of a similar kind which he had invented in 1849 and 1857.—*Lancet, June* 21, 1862, *p.* 666.

88.—ON THE DRIED STEM OF THE SEA TANGLE AS A SUBSTITUTE FOR TENTS.

By Dr. C. F. Sloan, Ayr.

It is probable that tents would have been in more general use in surgery, had a material for their construction been hit upon

possessing the requisite qualities, at the same time capable of being easily cut into any shape by the surgeon himself, and in such plenty as to be within the reach of all. Such a substance will be found in dried sea-weed.

The algæ are purely cellular in their structure, possessing no vascular system like phanerogamous plants; they have the property of drying readily at ordinary temperatures, in so doing diminishing greatly in bulk, becoming firm, elastic in the sense that wood is, and very tenacious. When the drying process is arrested at the proper point, they have a consistence rather softer than horn. The additional property which renders them valuable in surgery is, that in this state they retain for years the power of readily absorbing moisture, and in a few days resuming almost their original size.

The stem of laminaria digitata will probably be found best adapted for surgical purposes; it is one of our commonest sea-weeds, and is readily recognised by its appearance of possessing root, stalk, and branches. In this climate it acquires a length of from 2 to 12 feet, with a diameter of from one to several inches.

The property of diminishing in bulk when dried has long been put to use by the western Celts in forming the handles of knives, &c.; the end usually fitted into the haft being inserted into a portion of the recent stem, is firmly grasped by the contraction that takes place in drying, while the soft and comparatively fragile material assumes the appearance, and almost the consistence of buckshorn. I have found this a most convenient method of mounting a lancet for opening abscess of the tonsil. In order to put the power of tents formed of this substance as extensively as possible to the proof, I requested the co-operation of some of my friends, and now submit the experience of those from whom I have received written communications. The only manner in which I have myself used it, is in dilating a sinus, which it effected rapidly and well.

Dr. Gray, 15, Newton Terrace, Glasgow, writes:—

"In reference to the use of the sea tangle tent, I may say, I have tried it in a variety of cases, and with uniform good results. I must say I prefer the tangle to the sponge tent for the following reasons:—It does its work as well, and the same tent can be used repeatedly; it is considerably cheaper—while a sponge tent of a certain size costs 3s., a tangle tent will not cost as many pence; the great facility of introducing the tangle tent; and lastly, there is less risk of causing pyæmia, one fatal case of which occurred recently in my practice after using the third sponge tent. I shall now state a few of the cases in which I have used the tangle tent.

"1st, A lady had repeated attacks of flooding since the birth of her last child five years ago. A good-sized tangle tent was introduced and allowed to remain forty-six hours in the womb; it was then removed; the womb was fully dilated so as to admit the finger.

"2nd, Mrs. B., had been for some years suffering from dysmenorrhœa; the uterine sound could not be passed through the os internum. A small-sized tangle tent was first introduced and allowed to remain twenty-four hours, after which a larger-sized tent was introduced, which was removed at the end of twenty-six hours; both tents were fully dilated, and the stricture of the os internum overcome.

"3rd, A lady from Manchester, married five years, with no children; on examination was found to be suffering internal metritis. A tangle tent was introduced and kept in for twenty-four hours, after which the solid nitrate of silver was applied to the lining membrane of the womb.

"4th, Another lady suffering from internal metritis, the tangle tent was introduced; but the pain occasioned was so great that it had to be removed in a few hours. I remarked, before introducing this tent, that it was covered with saline crystals which, I have no doubt, caused the pains, coupled with the dilating effects of the tent.

"5th, In these cases when the os externum is so small as barely to admit the point of a probe, I have found the tangle tent to answer well, first using the smallest size, and then one larger.

"After using the metrotome, I have used the tangle tent to keep the mouth of the wound open, with perfect success. In every case in which the sponge tent requires to be used, the tangle tent can be used, and, I have no doubt, will by and by come into general use.

"I have to thank Mr. Hilliard for giving me the first tangle tent; since then I have supplied myself from the sea-shore."

Again:—"If I did not mention, as one of the objections to the use of the sponge tent, the very disagreeable smell, I intended to have done so; although the tangle tent does smell a little, it is nothing in comparison to the fœtor from the sponge."

Dr. J. G. Wilson, Sauchiehall Street, Glasgow, writes:—

"I have on several occasions dilated the os and cervix uteri with tents made from the stem of the laminaria digitata. In each instance I was much satisfied with the result. The cases in which these new tents were used, were precisely of that class and character in which sponge tents would have been employed. Such tents in my opinion dilate the os and cervix uteri as effectually and as readily as those made of sponge; they possess moreover several advantages over those made of the latter

material. For example, I have found them to be much more easily introduced within the canal of the cervix uteri. Being much less fragile, they are not so liable to be broken and destroyed in attempts at introduction, which is often the case with sponge tents. On being withdrawn, they are found not to possess that disagreeable fœtor which is so peculiar to the sponge; another great advantage is, that they are much cheaper than sponge tents. My experience, in short, of your new tents is such as to justify the belief that they will ultimately supplant and supersede those made from sponges."

So far practice has borne out theory; the various further uses to which this new material may be applied are yet to be determined. The most important would be the dilatation of stricture of the male urethra. This might be done in two ways; as before mentioned, the substance is purely cellular in structure, so that only the portions directly exposed to moisture expand. Copal varnish effectually prevents the access of moisture, so that a bougie could be formed, expanding only at a given point, or a conical dilator might be made to project from a catheter, like Lallemand's porte caustique. Whichever way employed, it would be better to use two or more graduated dilators than one continuously, to obviate the possibility of a bulbous expansion forming behind the stricture. The lachrymal canals and the eustachian tube seem quite within the reach of this agent. I have found that young plants from half an inch to an inch in diameter, when fresh, expand more readily and to a greater extent than older specimens. With regard to the expansive power, I find that the tangle is merely retarded in expanding by a weight which flattens the sponge. A tangle tent freely exposed to moisture doubles its diameter in four hours, and in forty-eight hours increases to $1\frac{1}{2}$ times. A tent formed of gentian root increases only $\frac{1}{3}$ in the same time. There is a marked increase in length in the tangle tent which must, in some circumstances, be allowed for. Large instruments, such as would be required for stricture of the rectum, might be built of separate portions. Mr. Hilliard, of Renfield-street, Glasgow, suggests, that in cases where there is a deficiency of moisture, the tents should be dipped in hot water for some seconds previous to insertion.—*Glasgow Medical Journal, Oct.* 1862, *p.* 281.

89.—ON THE USE OF MEDICATED PESSARIES IN THE TREATMENT OF UTERINE DISEASE.

By Dr. T. H. Tanner, Assistant Physician for the Diseases of Women to King's College Hospital.

[The following is from a paper read before the Obstetrical Society of London.]

The value of a variety of local applications in the treatment of uterine disease seems to be insufficiently appreciated by the profession at large. The chief reason, perhaps, for the non-employment of medicated pessaries has been the difficulty of so making them that they can be efficiently applied by the patient herself. This difficulty is overcome by the use of the butter obtained from the theobroma cacao nut, as a material for holding the drugs together, instead of wax and lard. Mr. White Cooper has shown the utility of this butter as a basis for ophthalmic ointments, and it will be found equally valuable for pessaries and suppositories. Though it has the consistence of wax while cold, yet it becomes liquid in a few minutes when introduced into the vagina. After alluding to the cases of uterine, ovarian, and bladder disease in which medicated pessaries are of great service, the communication ended with certain formulæ which the author was in the habit of prescribing. The following are examples:—

Mercurial ointment, four scruples; extract of belladonna, one scruple; cacao butter, four drachms; olive oil, one drachm. Mix; divide into four pessaries, and order one to be introduced into the vagina every night.

Iodine of potassium, one drachm; extract of conium, four scruples; cacao butter, four drachms; glycerine, one drachm. Mix; divide into four pessaries.

Boxes of these pessaries, prepared by Mr. Cooper, of 26, Oxford-street, were placed on the table for the inspection of the Fellows of the Society.—*Lancet, Oct.* 11, 1862, *p.* 391.

90.—SELF-APPLYING SPONGE PESSARY.

By Dr. A. B. Granville, F.R.S., London.

Under the name of "Self-applying Sponge Pessary," I desire to make known a very simple contrivance by which uterine prolapsus (unless of a very aggravated form) can be effectually supported with the greatest ease, without the manual interference of a medical attendant.

Sponge pessaries have ever been in favour with the patients themselves, for many obvious reasons: amongst others, their pliability—the complete manner in which they apply themselves to the vagina imparting a feeling of support, and, further, the facility they afford of preserving cleanliness by means of injections with the improved female syringe. But if the sponge is of a large size, it is not readily inserted by the ordinary process. Now the object of my contrivance is to facilitate the latter operation by the patient herself.

That contrivance consists, first, of a conveying tube, four

inches and a half in length; and, secondly, of a slender stem, intended to bear the sponge. Both are made of the finest and lightest turned ivory, having a high polish. The diameter of the tube is one inch (or one inch and a half if a larger sponge be required) at the upper end; and one inch, half an inch, or three-quarters of an inch, as may be, at the lower end. Here there are two semi-oval pieces of the ivory walls cut out, opposite one another, an inch high; the remaining edges of this end of the tube being slightly turned outwards, so as to afford a hold for the fingers for pulling the tube out. The tube so constructed not inaptly reminds one of Recamier's speculum, and might, on occasion, be employed as such, as I have done.

A sponge of the finest texture, and oval, about the size of a pullet's egg (when dry), is firmly sewn on a round and slender ivory washer, half an inch in diameter, perforated with holes for the needle to pass through, and having moreover a female screw in the centre, into which the ivory stem is screwed when the instrument is to be introduced. This arrangement allows of the same stem being employed with two, three, or more sponges similarly secured on their respective ivory washers, whereby great facility is afforded of changing the pessary daily or more frequently, for the sake of perfect cleanliness and comfort. The sponge and the stem thus combined constitute the pessary, the introduction of which by the patient herself is effected in the following manner:—

The stem, bearing the sponge, being introduced by its free end into the upper or narrower part of the tube, is gradually pushed down towards the wider or lower end until the sponge itself disappears almost entirely, leaving only a very small, round segment visible. By moistening the sponge and compressing it, this manœuvre becomes easy of accomplishment. The patient next separates the labia with her left hand, and introduces with the other the instrument by its smaller end into the vagina, either in a standing or sitting posture, pushing it first somewhat backward and then upwards, until the everted edges touch the labia. In his position she applies one or two fingers to the small, round knob which terminates the stem, and holds it firm in its position; while with the fingers of the right hand she withdraws, by means of the everted edges, the tube from the vagina—an operation greatly facilitated by the presence of the two semi-oval cuts. The pessary will now remain in its place without wabbling or falling; but it may further be secured, if so desired (though there is little occasion for it), by passing a staylace through a hole made for that purpose in the small end knob of the stem, and fastening the same to a belt or a napkin.

To withdraw the instrument the patient, standing and bend-

ing forward, has only to pull the stem by the knob with the staylace, or even without it, at first straight downwards, and next by bringing the stem more towards the abdomen. In every case in which I recommended such a contrivance among patients capable, from their position in society, to appreciate the boon, the result has been most successful. The feeling of confidence and support experienced by the patient has been universally acknowledged. Mr. Weiss, instrument-maker, to whom I made over one of the instruments manufactured under my direction for the information of the profession, has kindly undertaken to have others made after the pattern, and keep them ready for use.—*Lancet, June* 7, 1862, *p.* 618.

91.—ON INJECTIONS IN THE TREATMENT OF UTERINE DISEASES.

By Robert Ellis, Esq., Obstetric Surgeon to the Chelsea and Belgrave Dispensary.

[The uses of injections may be learned by their failures. They are insufficient for the cure of ulceration if it has existed some time, and there is no satisfactory evidence that they can cure this condition effectually under any circumstances. In the great majority of cases they are even insufficient to cure leucorrhœa. They are useless for the cure of inflammatory induration and hypertrophy of the cervix, and they are equally ineffectual in the sole treatment of the spongy, indolent, patulous, and ulcerated cervix occasionally met with in obstetric practice.]

They are of great use in their secondary position as adjuvants to a higher class of remedies. For the relief of pain, for the removal of acrid discharges, for the deodorization of offensive, and for the suppression of exhausting fluxes, injections are of value. They are of use for giving tone to a relaxed and weakened organ, and as astringents for the support of the womb having a tendency to prolapse. Conjoined with judicious and appropriate cauterization, they are of the greatest use in hastening the cure of the inflamed and ulcerated womb; and it is of common observation, that patients who are careful in the use of injections, (as in private practice), get well very much quicker, and with less pain, than those who (as at public institutions) neglect this means. When the cure is complete, injections are still of much use, but it is most difficult to convince the patient on this point. In married life it ought to be easy to induce the patient to persist in this most healthful duty; yet the reverse is the fact.

The *substances* adapted for injections in commonest use are of

the stimulant and astringent kind. Of these, notwithstanding the opinions and practice of others, I consider the sulphate of zinc the most unjustifiable. I think I have seen it the cause of much irritation and mischief, and it is difficult to believe that the constant use of so poisonous a substance over so large a surface of mucous membrane can be other than injurious. The nitrate of silver is another substance most unsuited for injection, yet very frequently ordered for use. The mucus of the vaginal canal instantly decomposes it if used in a weak injection, and if in a stronger form, the excoriation of the external parts, together with the mischief inflicted on the linen, hands, and utensils of the patient, preclude its repeated employment. I have made use of a variety of substances for this purpose, but as simplicity and economy are chiefly of consequence in a daily matter of this sort, the result arrived at is, that a solution of alum, either alone or in decoction of oak-bark, is, after all, the best and most effective injection we can prescribe. A mixture of equal parts of tannin and alum forms a more elegant, but also more costly substance as an astringent. For the anodyne injections, solutions of belladonna and of opium are the only serviceable remedies, and to these may be added the liquor plumbi and hydrocyanic acid with occasional good effect. For emollients, milk-and-water, linseed-tea, barley-water, and thin starch or gruel, are very valuable. The injection of gases and vapours is a very uncomfortable proceeding, and is not always free from a certain amount of risk, but considerable relief may sometimes be thus obtained when other means are useless. Of those most valuable are the carbonic acid gas and the vapour of chloroform.

Lastly, of the *instruments* for injection. Gooch's bent pipe instrument is a cumbrous and dangerous apparatus, very apt to get filthy, and to inflict injury on the cervix. The glass "female syringe" is a most absurb contrivance for cleansing a canal so capacious as that for which it is intended. It is also often broken, and sometimes within the canal itself. The ordinary pump, with elastic tube, has the disadvantage of requiring the assistance of a second person for its use. For the use of the poorer classes a simple and excellent instrument was contrived by me some years ago; it consists of a piece of gutta percha tube, five feet long, fitted at its upper end with an inch or two of elastic tubing: this could be slipped over the mouth of a common kettle, and the other end being placed in its proper position, the inversion of the kettle produced a constant stream of water of sufficient force to well wash out the canal. The same object may be also accomplished (and this method is largely used in France) by the use of a long syphon, the upper end being immersed in a reservoir of water, and the lower retained in the canal by the patient. The French have an extraordinary

variety of instruments for this purpose, amongst the most useful of which is one on the principle of the moderator lamp. Without exception, however, the most commodious and useful of all instruments for uterine injections is the elegant arrangement known as Dr. Kennedy's, and now becoming much used in this country. It may be employed either for gases or for fluids; as a douche or as an enema. An ingenious contrivance, known as the barrel syringe, made of caoutchouc, is also useful for this purpose; but the action of its valves is less to be relied upon than in the former instrument. For general use the douche just named is the best of all the varied forms of instrument for vaginal injections, and it will probably ultimately replace every other kind. Its valves require occasionally a little looking after and cleansing, but this is simple enough, as they merely consist of two metallic peas.—*Lancet, May* 31, 1862, *p.* 570.

92.—DRAUGHTS OF ERGOT OF RYE.

By Dr. H. B. Montgomery, Fort St. George, Madras.

[The following formula is the one employed by the writer's late father. From the frequency with which the drug is required in India, the writer has had ample opportunities of judging of its efficacy.]

Having myself on more than one occasion experienced much difficulty in keeping ergot of rye free from insects, and in rapidly preparing it for use, I applied to Mr. Donovan, of Dublin, for the formula above alluded to, and the following was his reply:—

"Ergot in powder ℥i.; boiling water ℥ii.; which divide into two draughts.

"The ergot powder not to be strained off, but left in the draught. The ergot should be powdered without drying.

"In order to have these always ready and in proper order, I added a teaspoonful of spirit, vini or brandy and ℥ss. of etherial tinct. of ergot."

These draughts will keep for a very long time if preserved in bottles with *ground glass* stoppers, and they are so portable that they may be conveniently carried in the waistcoat pocket.

I can from experience answer as to their efficacy several months after their preparation; and I would strongly recommend my brother practitioners to have a dozen of them made up from fresh good ergot, on their next receipt of annual supplies of medicines.

The time saved by the use of these draughts, in lieu of the extemporaneous preparation of them, is of no little importance in urgent cases.—*Madras Quarterly Journal, April*, 1862, *p.* 410.

93.—ON OPERATION IN SCIRRHOUS CANCER OF THE BREAST.

By James Paget, Esq.

[Some recommend operation in nearly every case, others operate in none. Both have some truth in their arguments. But it is possible to obtain the good of both sides without adopting the too general rule of either.]

It is necessary to consider first what are the objections to the operation, and to—

1. The excision of the breast. They are chiefly, and almost alone, that the patient may die in consequence of it. Mr. Paget believed that in any large number of cases, even of those selected with some care, it may be feared that one patient in every ten will thus die, of pyæmia, or erysipelas, or tetanus, or secondary hemorrhage, or some calamity following the operation. And this must be no trivial consideration, for in every such case the operation destroys in a week or two a life which, but for it, might have lasted as many years.

Nor, according to some, is this all: for it is said that when the disease returns after operation it makes so much more rapid progress than if it had been left alone, that the operation shortens the lives of even those whom it does not kill outright. It cannot, perhaps, be denied that this may be true of some cases in the selection of which no judgment is exercised; but, on the whole, taking the results of some hundreds of cases, it is certain that the average duration of life in those operated on is not less than in those in whom the disease runs its course; rather, in well-selected cases it will be found always greater. In a recent tabulation of hospital and private cases, 85 cases operated on lived an average of 55.6 months, and 62 cases not operated on lived an average of 43 months. And some such proportion as this will probably be always found.

It has been objected, too, that the recurrent disease, even if not more rapidly fatal than the uninterrupted disease would be, is more painful. But this is certainly not generally true. In very many cases—in the large majority—the recurrent disease is much less severe than the continued disease would, in the same time, have become; it is only in a very few that we can fairly expect it to be worse. It can scarcely be urged that the pain of the operation or of its consequences is an objection; for, with chloroform, the pain of the one is null, and, with simple dressing, that of the other is really trivial. It may, therefore, be safely held, that the only material objection (but it is a very serious one) to the operation is, that a patient runs a risk of 1 in 10 of dying from it; in other words, it is only about 9 to 1 that she will recover from the effects of the operation.

What, then, does the operation offer that can make it advisable for a patient to incur this risk of dying? Does it offer to any one a reasonable hope of an indefinite prolongation of life, and freedom from the same disease? No; the recurrence of cancer of the breast after operation may be held to be as certain as anything in surgery. The question is thus narrowed: we must in every case expect the recurrence of disease; and this is likely to occur at such a time after the operation that, speaking generally, and on the average, the patient will not rarely die of cancer nearly as soon after the operation as if the disease had been left to its own course.

Can it, therefore, be reasonable to submit a patient to the risk of dying within a month, perhaps in a week, for the sake of that interval of health which will or may exist between the operation and the recurrence of the disease, and for a good probability of adding a year to life, and of having a less severe disease? The answer must depend, chiefly, on the probable length of this interval before the recurrence. The average is little more than thirteen months; more than one-half return within twelve months; about two-fifths return within six months. Is this average worth the average risk of life? Consider, when no operation is performed, the pain and anxiety,—the pain likely to increase daily,—the misery of waking every day to the consciousness of an incurable disease; the sometimes loathsomeness; the restlessness for cure—cure, such as there are never wanting dishonest men to promise. The average expectation of such relief seems worth the average risk, but not more. Look well, therefore, to the general condition of patients before deciding.

The average interval between the operation and the return of disease is, as has been said, about thirteen to fourteen months; but the extremes, between which the average is drawn, are very wide apart. In some cases the return may be within three months; in some not for ten, twelve, or more years.

It is, therefore, of great importance to be able to decide in what cases the risk of life is greater, and in what the probability of speedy return of the disease is greater, than the average.

For the first, there are no other rules for cancer than for other cases requiring large operations. These are some of the "doubly hazardous":—The old, after sixty; the very large-breasted; the fat and plethoric; the cachectic; the overfed on animal food; the drunkards; the gouty; the habitually bronchitic; the albuminurious; the very dejected, not merely timid; and, in short, those with any organic disease of internal organs; and, after middle age, these increase very much in their proportion.

And for the probabilities of rapid recurrence, these are "bad cases." Acute cancers, *i.e.*, all that have been rapid in progress;

for those which increase very quickly before the operation, are certain to recur quickly after it. This, however, may be no sufficient objection, for great pain may often be saved by its performance. Mr. Paget said that he remembered such a case in a lady, whose breast he removed when she was five months advanced in pregnancy. She recovered well from the operation, and the benefit procured by its performance was very great; she went to her full term, bore her child, and was able to suckle it for a year before she died, with her most anxious wish fulfilled in comparative comfort.

Another condition unfavourable to operation is a brawny skin with firm œdema and wide open hair-follicles, or wide adhesion of skin; so is that in which the skin is extensively cancerous, or where there are little scattered tubercles of cancer in the glands and skin; or where there is considerable affection of the lymph-glands in the axilla, especially *numerous* diseased glands. A moderate amount, however, of lymphatic disease is no serious obstacle to an operation. But supra-clavicular disease should be an almost absolute bar against it.

Mr. Paget here adverted to the best manner of detecting cancerous lymphatic disease in this situation, and said that in cases where it is impossible to make out satisfactorily, by touch, the presence of enlarged glands, a difference of outline may be often seen by bringing the eyes to the same level with the part, and comparing the two sides; an uplifting of the integuments being often caused by the presence of swollen glands too deep or small to be felt.

Cases in which cancer attacks the upper half of the breast are generally bad; and those in which the lower part of the gland is affected are among the best. Cancer simultaneously affecting both breasts, is seldom or never to be operated on, for the risk is greater, and the advantage not greater.

There are, again, certain cases in which an operation is needless; such are the very chronic—where the breast is small, shrivelled, knotty, and sunk down on the pectoral muscle. Patients with disease of this kind will live many years probably, with no increase of trouble, and with but little inconvenience.

Mr. Paget concluded this part of the subject by summing up the advantages on each side, and said that the statements which he had made were taken from general averages, and that from such alone could any general conclusions be drawn. To deal with single cases is but a sort of surgical gambling. One man will tell of a case where no operation was performed, and the patient lived for twenty years; and another will tell of a life prolonged for almost the same time after operation; each statement quite true, but neither of them of any useful application. To reckon from such cases is mere gambling; and, as in gambling

of other kinds, the best luck at first brings the worst grief at last.

In a second lecture on this subject, Mr. Paget proceeded to consider the treatment of cancer of the breast with caustics. This method of extirpation may be regarded as supplemental to excision. There is at the present time a patient in Sitwell ward who is being treated in this way, and whose case gave occasion to these and the foregoing remarks. To state what may be a guide to the choice of cases for employing this rather than excision:—The objection to cutting is the risk to life. This risk is with caustics less. It is often said to be none, but this is an error. Death sometimes happens not by pyæmia or any such malady, but through severity of suffering, hemorrhage, too great exhaustion, &c. Mr. Paget said he had known three cases in one special practitioner's hands, of death in a month or little more from the commencement, and through the effects of this treatment. But say the risk to life is only half that of cutting; why not, for this advantage, always use caustics? These are the objections:—The treatment is fearfully painful. The means of alleviation are very insufficient. It may be mitigated, indeed, by opiates, or injection of morphia beneath the skin, but not materially. In neuralgic patients, especially, the pain is utterly intolerable; but cutting, not more dangerous than in the average. A second objection is the danger of incompleteness, through loss of health, or local inflammation, making the rate of progress of the cancer greater than that of the destruction by the caustic, or through leaving an open, inflamed, and, consequently, worse form of cancer.

There is the danger, also, of irritating the lymph-glands, and so making them more liable to be affected by cancer; and there is the danger of very rapid return even after complete removal of the primary tumour. It has, indeed, been said by those who pretend to cure cancer thoroughly by this method, that no recurrence takes place; than which nothing can be more false. There are no reliable statistics to decide the rate of return, but it is certainly not less, and is, probably, more rapid than that after excision, from some of the gland, in which the disease will most probably return, being left—and left not uninjured after the inflammation, &c., which has been set up in the neighbouring tissues.

These are, altogether, such serious objections, that caustics are very rarely to be preferred to excision, except in some of those cases in which, as enumerated in the last lecture, excision would be attended with much more than the average risk of life; for the constitutional maladies which greatly increase the risk of cutting do not, except very rarely, increase the risk of caustics. Many local conditions forbid the use of caustics,—as a very

large cancer, a decidedly acute one (for this will almost certainly run ahead), a very widely affected skin, general œdema of skin, scattered tubercles, nearly all degrees of disease of glands, all supra-clavicular disease, wide-spread ulceration, &c. But these are left as more fit for caustics than for cutting,—many of the small cancers, especially in the unhealthy or diseased, many of the recurrent, the exuberant, some of the ulcerated, some of the adherent.

In conclusion, Mr. Paget said he believed, that by selecting with care, on the one hand, cases for excision, refusing those in which the operation would be attended with more than a proper share of danger, and, on the other, by using caustics where, from their smaller risk, &c., they would be more appropriate, the life of a large number of those who suffer from cancer may be considerably prolonged, and more even than any present statistics would show.—*Med. Times and Gazette, Sep.* 27, 1862, *p.* 319.

94.—SOME OBSERVATIONS ON APNŒA NEONATORUM.

By George Greaves, Esq., Lecturer on Midwifery, Manchester Royal School of Medicine and Surgery.

The phenomena of still-birth (excluding the cases of immaturity, morbid action, or atrophy, in the fœtus) are ordinarily due to the excessive action of a cause which operates in every labour. That cause is the suspension of the communication between the maternal circulation and that of the placenta, produced, except in those rare cases in which, at an early period of the labour, extensive separation of the placenta takes place, by the closure of the curling arteries of the uterus by the uterine contractions. The blood in the placental capillaries, as has been said, no longer changed by the influence of the arterial blood of the mother, ceases to move onward; the umbilical circulation is in consequence suspended; the aorta of the fœtus becomes congested; and the ventricles of the fœtal heart being in consequence over-distended, their contractions become slower and slower, and finally cease.

To this explanation it may, perhaps, be objected that the circulation through the cord cannot be suspended, inasmuch as it is still felt to pulsate, although slowly. But the beating of an artery under the fingers is, *per se*, no proof that the blood is passing through it. Tie the navel-string of a child just born, and, although pulsation at once ceases beyond the ligature, yet, between the point tied and the navel, it is for a time as vigorous as ever. A similar phenomenon, viz., pulsation in a part only of the cord, has often been observed where it was not tied. It is difficult to understand how accurate observers, like the late

Dr. Denman, could remark that "the pulsation of the cord, when left untied, first ceases at the part nearest the placenta, and then by slow degrees nearer and nearer to the child, until it entirely ceases," without understanding the lesson which such a fact teaches, viz., that what has been mistaken for circulation through the cord is, in reality, nothing but the vibration communicated to the otherwise motionless columns of blood in the funic arteries by the contractions of the fœtal heart.

Again, it may be asked, why ascribe the whole effect to the compression of the curling arteries, and not in accordance with received opinions, to pressure on the whole mass of the placenta, on the funis, or on the fœtus itself? To this it may be replied: that the cause assigned is quite sufficient to account for the phenomena, and that it is unphilosophical to seek for superfluous causes. Pressure on the placenta may act in a secondary way, but the first effect must, it is self-evident, be on the ultimate ramifications of the uterine arteries.

I have already referred to the stoppage of the placental circulation by compression of the funis previous to labour. After the commencement of parturition, the same cause may operate in aid of the compression of the uterine bloodvessels. When the cord is round the child's neck, and, after the delivery of the head, begins to be put on the stretch, the sides of its vessels must be made to approximate, not only by pressure against the child, but also by the extension to which they are subjected. The resistance to delivery caused by the cord calls forth more violent expulsive efforts of the uterus, by which the uterine arteries are more effectually closed. Some separation of the placenta also occurs, and the effect of these causes being still further intensified by the compression and stretching of the funis, which forces back the blood which its arteries contained, into the bloodvessels of the child, the action of its heart is the more impeded and its contractions become slower and slower, and, if the obstacle to delivery be not removed, finally cease. In the last case of this kind which I attended, I was able, before cutting the cord, to count the pulsations of its arteries. I found them to be rather less than four in five seconds, or about forty in the minute, and yet the child, which was born almost instantaneously after its liberation from the restraining nooze of cord, cried lustily before its lower limbs escaped from the vagina, and gave every other sign of vigorous life.

Compression of the head or trunk of the child probably has, in instances of tedious labour from contracted pelvis, or in preternatural presentations, its share in producing the phenomena of still-birth. But this cause cannot have acted when the child is still-born, after an unusually rapid, and therefore easy, labour. This pressure, moreover, ends with the birth of the child, but

the apnœa continues. That the phenomena then exhibited can be due only to the congestion of the heart, is proved by the change taking place on the establishment of respiration. With the first full inspiration the pulsation of the cord, which was 60, 70, or at most 80, in the minute, rises at once to a rate of 120 or 130, the surface, which was deadly pale, assumes the rosy hue of health, and the child cries and moves its limbs vigorously.

The explanation now attempted to be given of the phenomena of apnœa in newly born children, would be incomplete if another point were not referred to. The stoppage of the placental circulation, while it prevents the escape of blood from the body of the fœtus by the arteries of the cord, prevents also the entry of blood by the vein. One obvious effect of this is the loss of the vitalising influence of the maternal blood upon that of the child. As the whole of the freshly arterialised blood conveyed by the ductus venosus, is carried direct to the left ventricle, and thence to the brain, when the circulation through the cord is suspended, the brain suffers in two ways. Not only is the blood, in consequence of the oppressed and enfeebled state of the heart, sent to the brain with less force, but it is supplied of a deteriorated quality, and the nervous centres are thus rendered unable to furnish the heart with the necessary supplies of nervous energy; hence the state of the child is that of asthenia, and, at least partial, syncope. This, of course, is true only of the purely apnœal, or apparently anæmic, forms of still-birth. It is very different in the apoplectic variety. In that form, respiration has to a small extent been performed, and has again been suspended. By one or two more or less imperfect inspirations, the pulmonary tissues have been sufficiently expanded to cause a part of the blood sent from the right ventricle to pass through the pulmonary arteries. The current through the canalis arteriosus has thus been diminished, and the pressure on the left ventricle to the same extent relieved. It has in consequence, begun to contract with greater force and frequency. At the same time blood has, in greater quantities, been returned from the lungs to the left auricle, by which the valve of the foramen ovale has been closed, the necessary consequence of which closure, when respiration has again, from any cause, been suspended, has been congestion of the right side of the heart, and of the general venous system. Hence the lividity of the surface, and the swollen features, the truly comatose state from cerebral congestion, and the occasional occurrence of sanguineous effusions within the cranium, or under the scalp. Notwithstanding this congestion of the right side of the heart, the left ventricle continues for a time to contract with its newly acquired frequency.

Before adverting to the practical considerations arising out of

the subject before us, one or two further observations may be made.

The explanation given of the way in which very rapid labour becomes dangerous to the child will also account for the alleged effects of the secale cornutum. It is asserted by some writers that that drug has often been fatal to the child: it can only have been so by causing, in accordance with its mode of action, permanent, unresting contraction of the uterus, instead of the intermittent action of natural labour: unless we also believe it to be in part due to the poisonous influence of the secale on the child.

We thus also learn the true mode of the production of the quasi-comatose condition of the fœtus during parturition, which has been described by writers as a useful provision of nature for the protection of the soft parts of the mother from the too lively movements of the child while passing through them.

It is thus also explained how it has been possible for doubts to arise as to the breathing function of the placenta, because of the want of apparent difference between the blood in the umbilical vein, and that in the arteries of the cord. The comparison can, during the life of the mother, be made only when by the uterine contractions, the funis has been brought within reach of the eye and hand of the observer. If, as maintained in this paper, the effect of, even the earlier pains, is to stop the supplies of arterial blood to the placenta, that contained in the umbilical vein must, by the time it can be examined, have become almost, if not quite, as venous as that in the arteries of the cord. But were it possible in the last months of pregnancy, before the commencement of labour, to inspect the interior of the uterus and especially the placenta, and the contiguous part of the uterine wall, and were our vision sufficiently piercing to pass through the coats of the vessels, we should see a marked difference between the contents of the arteries and those of the vein.

Do we not, finally, thus obtain the true answer to a question to which so many different replies have been given, viz:—why a child first breathes? Can it be doubted that it is the congested condition of the aorta of the fœtus, and consequently of the ventricles of its heart, caused by the cessation of the current through the funic arteries, and the *besoin de respirer* thus produced, which, conveyed to the nervous centres, excites them to send back to the muscles of respiration the stimulus which rouses them to act? Dr. F. Ramsbotham, who, in appendix L of his valuable work, has collected nearly all the various theories propounded on this subject, finds fault with them all, and in particular objects to that which I have adopted (which is substantially that of Blumenbach), that "the sense of suffocation produced by the closure of the umbilical vessels" cannot be the

cause of the first inspiration, "because the child breathes and cries before the circulation through the umbilicus is suspended." But it has been shown that mere pulsation of the umbilical arteries is no proof that the blood continues to pass through them, and therefore that objection falls to the ground.

[Nearly all authors agree in forbidding the division of the umbilical cord until respiration is fully established. This implies the belief that the breathing function of the placenta is performed, at least until that of the lungs is fully established, if not afterwards. This opinion is quite erroneous. In an immense proportion of instances the contractions which expel the child detach the placenta in its whole extent. But even if a portion still remain adherent, the arteries which convey the blood of the mother into the sinuses of the maternal portion, must, by the contractions which have extruded the child, have been entirely closed. Where the funis surrounds the neck so tightly both as to prevent respiration, and impede delivery, divide the cord at once, and expedite the delivery of the trunk a little; but very little bleeding occurs, and is rather a relief than otherwise.]

The next step must, of course, be to endeavour to excite respiration. Barely to enumerate the various modes of doing this, recommended by authors, would too much extend this paper, already too long. I can refer to two or three only. The use of the warm bath I believe to be positively injurious. Any doubt previously existing on this point must have been removed by the observations of Dr. Waters, recently communicated to the Medico-Chirurgical Society. Dashing cold water on the chest, slapping the back or nates with the hand, or making circular friction with the tips of the fingers on the epigastrium, are all useful modes of treatment, and the last named I have rarely found to fail if the action of the heart had not altogether ceased. Dr. Marshall Hall's "Ready Method" has been highly extolled by some writers, but should the treatment already recommended have failed, I should trust rather to direct imitation of the function of respiration by alternate inflation of the lungs by the mouth, and expulsion of the air by pressure on the chest and abdomen.

The early division and tying of the funis in still-born children has already been advised by writers of deserved celebrity, but by none, I believe, for the reasons assigned in this paper. Thus the late M. Moreau advocated it on the ground that the child, continuing to give out blood by the umbilical arteries, became gradually more anæmic and weaker. It seems to have escaped even him, that the beating of the cord is no proof that the blood is flowing through it. Dr. Richard King, in his very ingenious

essay On the Preservation of Infants in Delivery, recommends the early tying of the cord, for a reason similar to that given by M. Moreau. He believes that after the birth of the child a drain of blood still goes on into the relaxed and uncompressed placenta, which in consequence becomes congested. And yet Dr. King came very near to the discovery of the fact which I have pointed out, viz., that pulsation of the cord is no proof of continuance of the circulation through it, for at page 30, he says, "pressure on the umbilical cord will not for a considerable time, stop its pulsation. I have long been in the habit of calling attention to the pulsation in the piece of umbilical cord attached to the infant, while sitting in the nurse's lap, and therefore not only compressed but tied with tape and cut asunder."

Dr. King rightly describes the condition of still-born children who have not to some extent respired in the act of birth, as one of syncope, but his error consists, I conceive, in attributing the partial suspension of the heart's action to loss of blood, rather than to the causes assigned in this paper. The cases to which he refers (p. 58) of "deaths from drowning, where persons have fainted at the moment of submersion, in whom the face is pale and bloodless, and the features sunk and contracted," should have reminded him that an exsanguine appearance may exist without the previous loss of one drop of blood. As has already been shown, the ordinary signs of death by what is called asphyxia, being consequent on the suspension of respiration, can never be manifested in a being in whom that function has never been commenced. I may add that my experience has led me utterly to disbelieve in Dr. King's theory of bleeding into the placenta, as evinced by congestion of that organ. In many hundreds of cases attended during the last five-and-twenty years, I have, after cutting the funis, left the extremity of the placental portion united, and allowed it to bleed into the utensil provided for the reception of the after-birth, but I cannot remember an instance in which an ounce of blood so escaped. Were the congestion so great as imagined by Dr. King, bleeding, at least passive, to a much greater extent, would, in cases of still-birth surely have occurred.

In what has now been said, I am aware that I have advanced many opinions which are debateable, and some, perhaps, which will be thought positively erroneous. Where the latter has been the case, I shall be thankful to be set right, and shall be satisfied with having attracted the attention of my brother obstetricians to a field of research, hitherto, in this country, too little cultivated. I conclude with a brief recapitulation.

I maintain then:—

1. That the effect of even the earlier labour-pains is to close

the ultimate ramifications of the uterine arteries, but that this closure is temporary only, and ends with the termination of each pain.

2. That, during the pains, the blood contained in the sinuses of the maternal placenta, not being renewed by fresh supplies of arterial blood from the curling arteries, cannot effect the needful changes in the fœtal blood in the placental tufts.

3. That the blood contained in the tufts, remaining venous, stagnates in their capillaries, and that the umbilical circulation is thus arrested.

4. That as a consequence of this arrest, the aorta of the fœtus and the ventricles of its heart become congested, and at the same time the brain ceases to be supplied with arterialized blood.

5. That, consequently, the rate of pulsation of the fœtal heart sinks nearly to half its normal frequency.

6. That, if these periods of lowered force of the fœtal circulation occur too frequently, as in tedious labour, or too closely together, as in very hurried parturition, the child may be born almost or altogether inanimate.

7. That the effects of the suspension of the breathing function of the placenta are intensified by pressure on the funis, or on the head or thorax of the fœtus.

8. That where there is not some mechanical obstruction to respiration, such as tenacious mucus in the fauces, or the membranes over the face, the efficient cause of still-birth is an excessive degree of a condition which at birth always prevails normally, viz., congestion of the fœtal heart, which is to be relieved, first, by bleeding from the cord, and, secondly, by exciting respiration.

9. That the difference between the syncopal and apoplectic forms of still-birth, is that in the latter there have been imfect acts of respiration which, by closing the foramen ovale, have caused gencral venous congestion.

Since I read the above paper, my attention has been called by my friend Dr. Samelson to a work by Dr. Hermann Schwartz, of which a very elaborate analytical review is given in the 13th volume of the Monatsschrift für Geburtskunde, pp. 304. et seq. Treating on the state of the fœtus during parturition, Dr. Schwartz remarks, "an erroneous opinion prevailed up to the latest period, that after the birth of the child the placental circulation continues so long as the cord is felt to pulsate. But the contraction of the uterus which expels the child from the vagina must, to the uttermost, restrict the supply of arterial blood to the placenta, and neither altogether detach it or close any of its vessels which still remain pervious." I need scarcely remark how closely these opinions agree with those which I

have advanced. In respect of treatment also in cases of still-birth, I am happy to find an agreement. Dr. Schwartz says: "before tying the navel-string, it is useful to let it bleed a little."—*British Medical Journal*, *July* 12 *and* 19, 1862, *pp.* 35, 64.

95.—ON IDIOPATHIC AND TUBERCULAR MENINGITIS.

By Dr. Moore.

[These formidable affections are as distinct and can be as well defined as many other diseases in the nosology. At present the term hydrocephalus seems to cover all meningeal diseases. This is, however, a vague epithet, dating from the effect, not the cause of the disease. These diseases are divisible into acute and chronic. The following cases are intended to show that acute "Idiopathic Meningitis" and acute "Tubercular Meningitis" are distinct and separate lesions, and capable of being diagnosed as such during life. The first case is a female child, aged six years, admitted into the hospital on 31st of December.]

This child had a fall on her head some months ago, from which she seemed to suffer no inconvenience at the time. Nine days before her admission, whilst engaged at play, she suddenly complained of headache, which was soon followed by vomiting; the bowels were confined, and, despite of all purgative treatment exhibited, continued in a constipated state till the child was brought to hospital. On admission, the child was restless, constantly screaming, and rolling her head on the pillow; she seemed evidently unconscious; the eyes were congested; pupils very sluggish, greatly dilated, and turned up as in sleep; the little patient was inwardly convulsed. I immediately ordered the head to be shaved, and a blister to be applied over the vertex, extending from ear to ear, one grain of grey and one of James's powder to be given every second hour, and the bowels to be relieved by enemata; beef tea to be given liberally day and night. Notwithstanding all treatment the child became almost continuously convulsed, and the case proved fatal on the 7th January.

The *post mortem* examination was made with the greatest care, and presented the following appearances:—Having detached the membranes from before backwards, we found the brain so soft and semi-fluid as to resemble (as regards its consistency) thick cream. On being removed, the bony structures were carefully examined, but no trace of caries or disease could be detected. This, to a certain extent, narrowed our field of inquiry. The appearance of the cerebral lobes, as seen through the glistening dura mater, was of a beautiful purple colour,

evidencing intense hyperemia. On removing the dura mater the more minute and brighter red vessels became better defined; and at one spot on the top of the right lobe, close by the longitudinal fissure, a trace of pus, and here and there along the sinus, a few points of lymph were effused, the remainder of the superior and lateral lobes, merely giving you a greasy feeling when the finger was passed over them. On carefully turning up the base of the brain, the pulpy softening was very remarkable, and its substance of a darker hue than natural, and, on looking attentively, dots of lymph could be seen effused around the base of the optic commissures, and on either side of the pons, but no trace of tubercle either in the fissure of Sylvius or in the sulci of the cerebellar lobes, but in these latter the arborescent appearance was beautifully delineated. In cutting into the brain substance no trace of tubercle could be found, each lateral ventricle contained about three drachms of fluid, and the brain generally was semi-œdematous.

Now, in this form of meningitis, which is comparatively rare, and its causes obscure, a child in apparent rude health, with a favourable family history, is suddenly prostrated, the symptoms are very acute, and the duration of the disease, relatively short, sometimes running a fatal course in three or four days, and occasionally extending over ten days or a fortnight. The pathology of these cases shows general softening of the brain-substance, with ventricular effusion, but *no trace* of tubercle.

And now, for the purpose of contrast, I shall give you the details of a case in the adjoining bed to the one I have just read to you, which I believe to be one of tubercular meningitis, in which the symptoms were more subacute, and extending over a longer period, and in which the family history of the child tended to confirm our diagnosis of its scrofulous character.

James Mooney, aged seven years, was admitted into Mercer's Hospital on the 29th December last. His mother stated that about six months previous he had been seized with a fit, which had returned on three occasions; that she had three children, two of whom are dead, one of water on the brain, the other of hooping-cough. Before admission this boy complained of headache, attended with vomiting; he had a sluggish expression, with strabismus of right eye, the sight of which was much impaired. There was dilatation of both pupils, but especially the left, and ptosis of the left eyelid. He has been subject to staggering and giddy fits when walking, which have increased after each fit. The last fit was on Christmas-day. About six months ago, he had been a patient at the Institution for Children, Pitt-street, with the cerebral symptoms I have detailed, and in addition, a distinct friction-sound was audible over the base of the left lung. For this affection he was treated with biniodide of

mercury and bark, the head was shaved and blistered, and the side painted with tincture of iodine.

On admission into Mercer's Hospital, the head was again blistered over the vertex, from ear to ear, and one grain of grey and one of antimonial powder was given him morning and evening. The blisters and powders were repeated, and the head dressed with mercurial ointment, till the 6th January, when he got the 32nd part of a grain of biniodide of mercury in syrup of bark, three times a day. This treatment was attended with very satisfactory results; he walked more steadily; the ptosis of left lid well nigh disappeared; strabismus of right eye sensibly improved, and the boy assumed a healthy look; he was allowed to leave the hospital about the 28th of the month.

Now in this case the symptoms were much more subacute than in the first mentioned; this generally serves to guide in the special diagnosis of the tubercular from the idiopathic meningitis, in which I have already shown the symptoms are usually very active. In short, in the tubercular form the symptoms may be nothing more than slight fever, and drowsiness ending in coma. Now, in this case it *fortunately* happened that we were deprived of pathological proof of the tubercular nature of the affection; but from fatal cases, in which the symptoms were subacute and otherwise analogous, I am enabled to detail the *post mortem* appearances, which occur, viz., the effusion of greenish tenacious lymph about the base of the brain generally, small tubercular depositions in the pia mater, and effusion into the lateral ventricles, sometimes to the extent of several ounces. As regards depositions of tuberculous lymph, its most frequent seat is in the fissure of Sylvius. Again, as a rule in cases where tubercles are found in the membranes of the brain, even in the most minute proportions, similar depositions will be found in the other cavities, especially the lungs, but the converse of this condition will not hold equally, tubercular depositions occurring in the lungs and mesentery, and the brain remaining intact.

With respect to some of the symptoms attendant on the first case I have detailed:—The inward convulsions became very remarkable towards the close; each paroxysm attended with an extensive and semi-rigid condition of the extremities. I am aware that some deny the existence of inward convulsions, but any one who has carefully watched a case in which these inward involuntary twitchings and spasms occur, cannot fail to recognize them as identical with the more extreme convulsive seizures indicative of peripheral lesions of the brain. In this case also, the mucoid film became very remarkable over both eyes towards the close, the eyes remaining half closed, and becoming perfectly passive to external objects. This is a symptom of deep interest, pointing as it does to diminished nervous influence.

The fever attendant on tubercular meningitis is sometimes difficult to diagnose from that of the ordinary remittent or gastric type occurring in children; but I think the extreme irritability and sensitiveness of patients suffering from cerebral affections, coupled with a usually rigid retracted state of the abdomen, are sufficient to diagnose them from gastric affections, in which we usually meet with the abdomen full and soft, and a lax rather than constipated state of the bowels; and, in addition, we necessarily have not that painful sensitiveness on being touched or handled, usually present in the pyrexia of nervous diseases.—*Dublin Quarterly Journal, Aug.* 1862, *p.* 170.

MISCELLANEOUS SUBJECTS.

96.—ON THE USE OF NICOTINE IN TETANUS AND CASES OF POISONING BY STRYCHNIA.

By the Rev. Samuel Haughton, F.T.C.D.

(From a paper read before the Association of the Fellows and Licentiates of the King and Queen's College of Physicians in Ireland.)

[The use of nicotine in cases of tetanus and poisoning by strychnia was suggested to the author by a case published by Dr. O'Reilly, of St. Louis, Missouri, about four years ago.]

Case 1.—[The first patient in whose case Mr. Haughton used nicotine, had been dreadfully burnt at a lime-kiln, near which he had incautiously slept.]

6th February. Last night the slough began to separate, and this morning he was seized with tetanus, almost closing his mouth, and rendering it impossible for him to open it wider than would admit a spoon; it has to be kept open by a plug of wood. In other respects he has been much the same since the 3rd.

8th February. He is in a very dangerous state to-day: at intervals of about an hour each he has a very violent spasm.

At 8h. 40m. a.m. he was visited by Professor Haughton, at which time his pulse was 130. Mr. Haughton gave him one drop of nicotine (0·6 gr.). This had the effect of lowering the pulse to 105 at 9h. 5m. a.m., and of rendering the respiration fuller and less frequent; and at 9h. 50m. a.m., the nicotine had lowered the pulse to 92—88.

At 10h. 55m. a.m. he got one drop of nicotine. Before this the pulse had been 112; shortly after the dose it fell to 92.

At 12h. 20m. p.m. had a very violent spasm; and at 12h. 55m. p.m. got one drop of nicotine. The pulse had been 116, and was lowered, as before, by the nicotine.

At 1h. 40m. p.m. had a very violent spasm, pulling his bed-clothes with all his might.

At 1h. 50m. p.m. pulse very quick, and intermitted, ranging from 112 to 150.

At 2 p.m. pulse 112. For the last 20 minutes his breathing has been very rapid, and greatly impeded, owing to mucus

deposited in the bronchial tubes, for the absorption of which he has iodine rubbed over the upper part of the chest.

At 2h. 10m. p.m. had a very violent spasm, just before which he was conscious, answering indistinctly when spoken to. In addition to the tetanic spasms, he has had continual twitching of the muscles yesterday and to-day.

At 2h. 40m. p.m. had a very violent spasm.

At 2h. 45m. p.m. expired.

The effects of the nicotine observed in this case were the following :—

1. The immediate relaxation of the spasm of the muscles of expression, of respiration, and of deglutition.

2. The cessation of delirium, and feeling of relief from agonising pain.

3. The lowering of the pulse from 130 to 88 per minute.

These effects succeeded the administration of the nicotine up to the last moment, and by the use of this alkaloid the unfortunate sufferer was spared a most painful death, and allowed to die quietly of double surgical pneumonia, consequent on the extensive surface injury, instead of dying in torture by tetanus.

Case 2.—[The next case is one of Subacute Idiopathic Tetanus, caused by exposure to cold.]

At the suggestion of the Rev. Professor Haughton, Dr. Hudson determined to try the effect of nicotine. That medicine was, therefore, administered four times during the day, according to the former gentleman's directions, and with the following results :—At two o'clock, the patient, having sunk into an uneasy sleep, was awakened. Half a drop of nicotine, which is equivalent to three-tenths of a grain, was administered in 2 drachms of wine and water. His pulse was 80, but rose within ten minutes up to 88. At half-past three, when he was next visited, his pulse was 78, and he was bathed in a profuse but clammy perspiration. At half-past five, his pulse being still 78, the nicotine was repeated in the same dose. The pulse shortly afterwards rose to 100, and it was beating at that rate at six, seven, and eight o'clock. Immediately after the administration of the first dose, the abdominal muscles became manifestly relieved, and the abdomen rose and fell to a nearly natural extent in breathing. The muscles of the limbs, however, were still rigid. Towards the evening he became quite rational, and when visited at half-past eight, he was sleeping calmly. When awakened he was in perfect possession of his senses; his pulse 78; his tongue white, but moist, and his pupils, which had been much contracted during the day, were dilated to a natural extent. His urine was tested and found neutral, but when allowed to stand for some time, phosphates in abundance were deposited. At nine

o'clock he got the third dose, but this did not affect his pulse, which remained at 78, until midnight. He then got the fourth dose, and shortly afterwards his pulse rose to 80, and did not alter during the night.

January 9th. This morning he appeared improved in every respect. He had slept well, and there had been no return of the delirium. Although he still complained of pain during the presence of the spasms, he said it was not nearly so severe as before, and the intervals between the spasms were growing much longer. He seemed unwilling to move his arms, or stir himself in any way, as he said that the least motion sometimes brought on an attack. His abdomen was soft, and nearly natural, but there was no appreciable change in the state of his limbs. The profuse sweating still continued. At 11 o'clock he got the fifth dose, his pulse being then 86. The sixth was administered at five o'clock, the seventh at eight, the eighth at midnight; his pulse, during the day and night, ranging from 78 to 82. From the time that he became rational, his strength was kept up by beef-tea and small quantities of brandy, administered at intervals during the day.

January 10th. This morning the improvement in his condition was remarkable. He could move his arms freely, without inducing the spasms. These seldom attacked him, and even when they did, the pain, in comparison to what he had suffered, was trivial. He was able to move his legs and bend his knees a little for the first time. His spirits rose, and he began to feel hopeful. During the intermissions the muscles of his legs were perfectly relaxed, and those of his thighs were not quite so tense as they had been. The sweating continued, and he said his appetite was returning. The dose of nicotine was increased to three quarters of a drop, or nearly half a grain; and the first of these altered doses was given at 11 o'clock a.m., his pulse being 90. In half an hour it was 96. At two and at five, when he got the second and third doses, it was still 96. At eight o'clock he was not so well as in the morning. The spasms had become a little more frequent and painful, but yet not anything like so severe as they had been; and during the intervals the muscles, even those of his thighs, were perceptibly softer and less rigid. He seemed somewhat depressed and anxious, and complained greatly of thirst: his pulse had risen to 100. The medicine was administered every three hours during the night. Immediately after each dose the pulse rose to 100, but in a short time fell to 92.

January 11th. There was further improvement this morning. The muscles of the abdomen and legs were quite soft and flaccid, and those of the thighs becoming gradually relaxed. There had been no return of the spasms from 12 o'clock the preceding

night. The sweating still continued, and exhaled the peculiar snuffy odour characteristic of the nicotine. The power of moving his limbs was increasing. As he complained of being tired of the beef tea, it was ordered to be omitted, three eggs daily to be substituted for it; and stirabout, for which he expressed a desire, was ordered. His brandy was discontinued, and the nicotine ordered to be given in plain water. The next dose, the ninth of the increased quantity, was given at half-past four; and at half-past seven it was repeated, his pulse being 98. Up to that time there had been no return of the spasms. His bowels not having been moved for some days, a laxative enema was ordered.

January 12th. He was not so well this morning. The sweating had ceased, and his pulse was 120. He had had only one or two spasms, and they were not severe, but he appeared nervous and anxious. The angles of his mouth were drawn slightly backwards, giving his face a peculiar expression. The fact of the cessation of the sweating being coincident with the discontinuance of the stimulants, suggested the idea that the nicotine required to be combined with these, in order to exert its full constitutional effects. The brandy was, therefore, again ordered, and the nicotine to be given in sherry in the following proportions:—Twelve drops were mixed with two ounces of wine, of which one drachm was to be taken every three hours; the dose being, therefore, thirteen-sixteenths, or, in round numbers, three-quarters of a drop. At half-past six in the evening, the medicine having been regularly administered, with the stimulants, he was again improving; his pulse down to 96, and his skin moist and soft.

January 13th (Sunday). His pulse was 100, but he was in every other respect still improving.

January 14th. He felt himself much better, was able to move his legs and bend his knees to some extent. In the evening the muscles of his thighs and abdomen became a little more tense than they had been for some days, but he did not complain of pain. His pulse during the day ranged from 92 to 108, and at half-past seven it was 102. He was then quiet, and inclined to sleep. The dose of nicotine to be reduced one-half.

January 15th. His face had regained its ordinary expression, and he could move his limbs more, but he did not like to do so, as it gave him some pain, and appeared to require great exertion. His pulse varied from 88 to 100.

January 16th. This morning he had still more power in his limbs, and said he felt much better. There was, however, an anxious expression in his face, and he did not speak naturally, or with as much distinctness, as he had done previously.

January 17th. The nicotine to be administered only three times a-day.

January 18th. The general improvement was becoming more and more evident, and he was making inquiries as to when he would be allowed to get up. His pulse maintained the same character and variations.

January 19th. He was able to sit up in bed. He got one dose of nicotine, and then the medicine was discontinued.

January 20th. He was allowed to get up for the first time. He expressed himself as feeling very well; and was able to stand without assistance, and could walk a step or two by holding on to the rail of his bed. A glass and a-half of brandy to be taken during the day.

January 21st. He was up and moving about for some time.

January 22nd. Feeling rather fatigued from the preceding day's exertions he remained in bed this day.

January 23rd. No perceptible change; but he said he was getting gradually better. He had not been attacked by the spasms for several days, but still the muscles of his thighs were by no means completely relaxed, the adductors and hamstrings particularly.

January 24th. Two strap-shaped blisters were ordered to be applied, one on either side of the lumbar spines; and he was desired to take five grains of iodide of potassium in a wine glassful of compound decoction of sarsaparilla, three times a-day.

No circumstance worthy of note occurred during the remainder of the week. On Saturday, the 26th, he was up and walking about the room, but was obliged to use a stick to support himself. The muscles of his thigh were still stiff, but there was an entire absence of pain. The discontinuance of the nicotine did not appear to produce any material change on his pulse, which ranged from 90 to 100 during the week. The sweating continued, but not anything like as copiously as during the administration of the nicotine. During the succeeding week there was gradual but decided improvement. On Saturday the 2nd of February, he was able to walk remarkably well, and all he complained of was a slight stiffness about his knee joints. All his muscles, even the adductors and hamstrings, were perfectly relaxed, soft, and flaccid.

He was discharged from hospital on the 6th of February, and the only inconvenience which he complained of was the stiffness in his knees, which was then rapidly diminishing. In all other respects he declared himself perfectly recovered.

The quantity of nicotine given to Kershaw, from the 8th to the 19th January (11 days), amounted to 44 drops, or 26·4 grs.

The following statements as to the physiological effect of this

alkaloid, when combined with minute doses of alcohol, appear to be borne out by the details of the case:—

1. It produced immediate relaxation of the muscles of the abdomen, back, and diaphragm.

2. It caused cessation of delirium.

3. There was a slight tendency to cause increased circulation, to the extent of 10 beats per minute.

4. It caused profuse sweating, which exhaled an intolerable odour of snuff, not of tobacco.

5. It had a tendency to produce deep sleep.

6. It failed to control quickly the adductor muscles supplied by the obturator nerve; and even when the hamstring muscles gave way, the adductors refused.

I became aware, after I had used nicotine in the two preceding cases, that tobacco enemata had been employed successfully by the late Dr. O'Beirne, of this city, in the treatment of traumatic tetanus. Dr. O'Beirne was induced to employ tobacco, from its known power in overcoming constipation and destroying worms, as well as from its control over the nervous system.

Case 3.—[The third case was a druggist's apprentice, who attempted to poison himself with strychnine. He swallowed according to his own account about as much as would cover a shilling.]

When I arrived, at 10. 15 p.m., he was lying on his back, his head thrown back, chest raised and fixed, limbs rigid, hands clenched, eyelids spasmodically closed, and corneæ turned upwards. The priest told me, that during the administration of the last rites of his church, the boy was seized with a sudden spasm, which threw a tin tray with some violence into the air; the tray was resting on his abdomen. I had an infusion of tobacco made, by pouring a pint of boiling water on about an ounce of cut Cavendish, heated over the fire, and strained; cold water was then added until the liquid was tepid. I made him drink two-thirds of this. Furious vomiting followed instantly. He swallowed the rest, with same result. The stomach appeared to be completely empty. He lay quietly on his back for about five minutes, when he was seized with a violent spasm, and quivering of the whole body, then complete opisthotonos and clenching of the hands. At about the middle he gave two short screams, as if he was in intense pain. I gave him another pint of the infusion in three doses, all followed immediately by vomiting. Another pint was prepared from the same ounce of tobacco; about a tea cupful of this was retained in the stomach for about five minutes; a second was retained somewhat longer. Profuse sweating now commenced, and he slept for a short time. I left him for about half an hour. On my return I found him

lying quietly on his back; all his muscles, except those of the legs, relaxed, breathing less rapid, pulse slower, soft, and rather weak. I turned him on his side (which he was afraid to do himself). He drew up his knees, put his hands under his head, and went to sleep. The night nurse says he only turned once during the whole night to ask for a drink.

Wednesday morning. Appears weary, and rather sulky. Hamstrings still hard and stiff. Pulse 120.

Thursday. All his muscles relaxed; complains of some tenderness along the spine; appetite returning.

It appears to me clear, from this case, that the tobacco produced two important effects:—

1st. It produced vomiting, when all other means had failed, and so saved the patient from the yet future effects of the strychnia remaining undissolved in his stomach.

2nd. The physiological effect of the nicotine absorbed by the system, counteracted that of the strychnia already absorbed, as in the Cincinnati case, and as in the case of my own experiments on frogs.

From the statements of the boy to myself, checked by comparison with a known weight of strychnia, I estimate the quantity of the poison taken by him at four grains. The case itself furnishes a powerful argument in favour of the introduction of Nicotine into the Pharmacopœia, as the dose of this alkaloid might be regulated with any required degree of precision; whereas the strength of a decoction, or infusion of tobacco, is almost entirely unknown. Too much credit can scarcely be given to Mr. Smyly for his promptitude and courage in administering the only known remedy; but at the same time, it cannot be denied that dangerous consequences will probably arise from the use of tobacco in such cases, as the strength of the remedy employed is unknown, and its own effects upon the system are only second in violence to those of the strychnia it is employed to counteract.

Case 4.—[The fourth case was one of compound fracture of the right radius; tetanus set in, and chloroform was tried, but not with much success.]

The first dose of nicotine (one drop) was given on Sunday evening, 16th March, and produced rapid relief of the spasm of the muscles of the neck, chest, and abdomen, followed by profuse sweating; and the patient expressed himself as being much relieved.

From the evening of the 16th till the morning of the 18th nicotine was given, in doses of 1, 2, and $2\frac{1}{2}$ drops, in sherry and water, according to the urgency of the tetanic spasms. After the administration of the dose, in three minutes, the spasm was

gone, and the muscles relaxed, and profuse sweating, accompanied by a smell of snuff, set in.

On the 19th the nicotine was not given, but was resumed on the 20th and 21st, with the same beneficial results as before. From the latter date to the present time (4th April) it was not found necessary to give nicotine, and the patient is now gradually recovering.

During the four days on which he was treated with nicotine, he received by the mouth and rectum, altogether 54 drops=32½ grains; and the physiological effects appeared to be the same, whichever way the alkaloid was exhibited.—*Dublin Quarterly Journal, August*, 1862, *p.* 172.

97.—CASE OF TRAUMATIC TETANUS TREATED BY CHLOROFORM AND ACONITE.

Under the care of W. Coulson, Esq., at St. Mary's Hospital.

Among the remedies that have been tried to relieve the spasms of tetanus, chloroform is one that has been useful in some cases, and in others has proved of no avail whatsoever. Instances have been recorded where recovery has ensued when the inhalations have been persistently employed. In the case which follows we think that chloroform had much to do with the result, inasmuch as it helped to get the disease over a certain period, when its great force was spent; thus rendering it amenable to the effects of aconite. Tetanus followed on the fifteenth day of the injury, and the symptoms were of the most acute character. At first, calomel and opium were given without any decided benefit, although the opium in grain doses was swallowed every four hours. Then the chloroform was tried, as detailed in the notes of the case, and, it must be admitted, with great relief for a time; nevertheless it did not wholly remove the rigidity, which was continued in the abdominal muscles. After eleven days' trial the tincture of aconite was substituted, and the patient's health was restored. The nervous system had been rendered more susceptible to the effects of the aconite, for the symptoms rapidly subsided; and in four days the muscular rigidity, and in seven the pain, had wholly disappeared. The tetanic symptoms had been present seventeen days when the last remedy was employed.

It would be well to remember, in similar cases, that when chloroform is pushed to the stage of anæsthesia the patient's sufferings are lessened, and it gives time to employ other remedies; but experience has shown that it is a loss of time merely to allow the inhalation of a few minims at intervals. The tremendous power of the spasms should never be overlooked.

George D., aged fourteen, of Shepherd's-bush, the son of a coal porter, was thrown from a horse on Sunday, May 18th, 1862. He was immediately conveyed to St. Mary's Hospital, where it was found that he had sustained a compound fracture of the lower third of the right forearm, which was duly attended to by Mr. Young, the then house-surgeon, and put up in splints in the usual way. He was then taken home.

He progressed favourably up to the evening of June 2nd, when his mother observed, whilst he was at breakfast, that he had some difficulty in opening his mouth, and was almost unable to swallow. He was then conveyed to the hospital, and admitted into the accident ward. He was ordered, by Mr. Coulson, calomel with grain doses of opium every four hours. At this time the fracture had not completely united; a wound on the inner side of the forearm, about its middle, was still open, but looked healthy; it was healing by granulation, and was about two inches long.

On the evening of June 3rd, during the frequent spasms, the ends of the fractured bones became displaced; these proved difficult to re-set, as the boy could scarcely bear to be touched.

During the next few days the spasms continued with increased frequency and violence; the rigidity of the muscles of the face, back, and lower extremities became alarming, and the symptoms of tetanus in its acute form were fully developed. He was now placed under the influence of chloroform for the period of twenty-four hours, kept up continuously by succeeding attendants, with favourable results, for the paroxysms were less severe when they recurred; the rigidity of the muscles of the extremities and the involuntary evacuation of the urine and fæces became less, although the abdominal muscles remained rigid and highly tetanic up to the 18th, when it was believed the chloroform had lost its anti-tetanic power. The patient had consumed altogether about sixty ounces of the drug during the period of its inhalation. Its administration had been suspended at short intervals, to allow the boy to take some beef-tea and a little brandy.

On the 14th he complained of pain all over his body; on the 15th, 16th, and 17th the rigidity of the limbs was much less, and he was allowed intervals of half-an hour between awakening and the renewal of the chloroform.

On the 18th five minims of tincture of aconite were ordered by Mr. Coulson every four hours, with good effect, as the spasms became less severe. The dose was doubled on the 21st, and by the next day the muscular rigidity had wholly disappeared. By the 25th he was free from all pain, and the fracture was now united without any deformity. The wound was healed on the

28th, and he shortly afterwards left the hospital quite well.—*Lancet, Sept.* 6, 1862, *p.* 255.

98.—CASE OF POISONING BY OPIUM TREATED BY BELLADONNA.

Reported by Dr. Murray, Resident Physician, Melbourne Hospital.

A. S., æt. fifty, was brought into hospital on the 3rd June, at half-past 12 o'clock p.m. On admission his face was pallid, the skin cold, pulse 120, small and weak. There was great mydriasis, the pupils not larger than a pin's head. He was capable of being aroused, and answered questions, but quickly relapsed into deep somnolency. It was stated that he had been drinking the night previous; that he had been guilty of some large monetary defalcations, and that he had taken, at about 10 o'clock p.m., an ounce and a-half of laudanum, as calculated from the emptied vials, and from the patient's own statement. How he passed the night is uncertain, but when his room was entered at a quarter before 12 o'clock next day, by a detective officer who had a warrant against him, he was in a comatose condition, and snoring heavily. A medical gentleman who was present said that he had administered an emetic. The patient was soon afterwards brought to the hospital, and was admitted in the state above described.

After admission he was kept constantly walking up and down the passage between two of the attendants, and a dose of the following mixture was given to him at one o'clock p.m.

℞. Tinct. belladonnæ ℥iv.; mucilag. g. acac. ℥ii.; aquæ, ad ℥iv. M. ft. mistura. Sumat ℥ss. statim.

About ten minutes afterwards the following draught was given:—

℞. Spt. ammon. arom., spt. æther. sulph. aa. ℥ss.; aquæ ℥i. M. ft. haust. stat. sumend.

He then drank some strong tea, and frequently inhaled some sal volatile.

2 o'clock. Pulse 150, and much stronger. Somnolency still a prominent symptom. Pupils unchanged. Hab. mist. belladonnæ ℥ss. statim.

Quarter-past 2 o'clock. Somnolency still continues, though not in such a marked degree. Pulse 150. Hab. mist. belladonnæ ℥ss. statim. Galvanism was now applied for the first time. The current was transmitted from the nape of the neck to the epigastrium. The effect produced was decidedly *sedative* when the *uninterrupted* circuit was maintained, the patient becoming more comatose, and breathing with more stertor, but

when a succession of shocks were transmitted, muscular contractions took place. The galvanism was continued for some time, but it did not appear to be of any real benefit. During its application muscular contractions took place, but whenever it was discontinued, the somnolency was as great as ever.

Quarter before 3 o'clock. Rept. mist. belladonnæ, ℥ss. statim.

3 o'clock p.m. Pupils dilating. Patient more easily roused up. Pulse 160, and fuller.

20 minutes past 3 o'clock. Rept. mist. belladonnæ ℥ss. statim.

40 minutes past 3 o'clock. Pupils more dilated. Heat of skin increased. Pulse still 160, but increased in volume. Patient is less drowsy. Omit medicamenta.

4 o'clock. Face is rather flushed. The tendency to sleep has almost entirely disappeared, and the patient is capable of conversing readily. He left the hospital quite recovered on the following morning.

Remarks by Dr. Motherwell.—From having oftentimes observed the effects of treating cases of poisoning with opium, by keeping the patients constantly moving about, and subjecting them to the continued action of galvanism, I have had some doubts as to the correctness of such a mode of treatment. Doubtless many cases so treated, in combination with other remedies, have recovered; but how far that recovery was effected by the constant motion, and the action of galvanism, has appeared to me very questionable. I have read somewhere that it was the opinion of several eminent medical men that in such cases the action of galvanism, instead of being beneficial, was, on the contrary, very injurious, because it tended to exhaust the already impaired nervous energy of the patient. In like manner, it appeared to me that the practice of keeping in constant motion a person who was oppressed with a powerful narcotic only tended to tire him out, and exhaust his strength, thus adding to the somnolent effect produced by the narcotic.

We have heard and read lately of the good effect of digitalis as an antidote to alcoholism, and also of the antagonistic action of belladonna in cases of overdoses of opium. I have used the digitalis in half-ounce doses every fourth hour, in cases of delirium tremens, with great success, and I determined to try the action of belladonna in cases of poisoning with opium upon the first opportunity that presented itself, of course watching carefully the symptoms. This case of A. S. is but a solitary one, and cannot be considered very conclusive, because more than fourteen hours had elapsed between the time of the patient's taking the laudanum and the commencement of the treatment with belladonna; but when we consider that the ordinary dose of the tincture is from five to ten minims, and that in the case of A. S. two and a-half drachms of the tincture were adminis-

tered in less than three hours, it may be inferred that the laudanum must have caused some peculiar state of the system, to resist and overcome which these large doses of belladonna were expended before its special action of dilating the pupil was effected. It is worthy of notice how speedily the patient recovered from the effects of the opium, and that no ill effects resulted from the administration of such large doses of belladonna, which would not have been the case if given to a man in health.

From what I have seen in this case, I should not hesitate to administer belladonna in still larger doses in cases of poisoning with opium, and to dispense with the use of galvanism, or keeping the patient in constant motion; but I should think it advisable to rouse him up occasionally, or apply the douche of cold water for a minute or two, whenever the coma was becoming too profound, or the breathing stertorous.—*Australian Medical Journal, Oct.* 1861, *p.* 297.

99.—ON THE COLOUR TESTS OF STRYCHNIA, AS MODIFIED BY THE PRESENCE OF MORPHIA.

By Dr. Robert P. Thomas, Professor of Materia Medica in the Philadelphia College of Pharmacy.

[The question has quite recently arisen as to the possibility of detecting the presence of strychnia in the presence of a salt of morphia, both being dissolved in an organic fluid. It has been asserted that the usual tests quite fail in this case. It being one of some importance, we give the following able article upon the subject.]

The property, referred to morphia when combined with organic matter, of preventing the detection of strychnia by colour-tests, will, if confirmed, afford a satisfactory explanation of the difficulty experienced by Drs. A. S. Taylor, and G. Owen Rees, in their examination of the viscera of J. P. Cook, as elicited on the celebrated trial of William Palmer for his murder, in England, in May, 1856. They could not detect a trace of strychnia, notwithstanding the symptoms antecedent to Cook's decease pointed unequivocally to this alkaloid as the fatal agent. If not decomposed, it must have been masked by the presence of morphia, as Mr. Bamford, the attendant physician, administered half a grain of this narcotic, each night, for three successive nights previous to his decease. The circumstances of this trial, and the experiments, described in the papers referred to, furnish an imperative reason for a further investigation of the subject; as the suicide or murderer can destroy all traces of his work, by simply combining an excess of morphia with a poi-

sonous dose of strychnia. The former will not delay the fatal action of the latter, but on the contrary, will rather aid it.

With the view of determining the important question, whether strychnia is actually decomposed when treated with test-agents in the presence of morphia, or whether it is merely masked by such presence, I have performed more than a hundred experiments, of which an account of a few of the most valuable and satisfactory is now submitted. Premising that, in the examination of minute portions of strychnia, success or failure depends entirely upon the care given to the details. In all of my experiments I employed crystals of the pure alkaloids, and of their salts.

The "colour-tests" referred to in this paper, are those furnished by bichromate of potassa, or by the ferricyanuret of potassium (red prussiate of potassa), when added to a portion of strychnia previously dissolved in a drop of strong sulphuric acid. The discrepancies in the results of the published experiments of different observers depends, I think, in a great measure, on their diverse modes of procedure, and therefore I feel justified in giving a precise account of—

The Mode of Testing.—In every instance the material to be tested was employed in the solid form, such as the pure alkaloids or their salts. If it existed in solution, it was reduced to a solid consistence by evaporation in a test capsule, spontaneously, or by a very gentle heat. Having thus procured a solid substance, a small portion of it was placed upon a white plate, a drop of strong pure sulphuric acid was added, and trituration was carefully made with a glass rod until the substance was dissolved. Then a small quantity of powdered bichromate of potassa, or of powdered ferricyanuret of potassium, was deposited on the plate, *near the acid mixture but not touching it*, and to the powder a minute drop of water was added—just enough to partly dissolve it—and then, with a pointed glass rod, a little stream was drawn from each of the solutions in such a direction as to cross each other. Immediately at the point of intersection the play of test-colours was beautifully manifested. When the bichromate was employed, the sequence of colours was blue or violet, instantly changing to purple, then gradually becoming red, and finally greenish-yellow. When the ferricyanuret was used the colour was a rich bluish-purple, changing rapidly to a light rose-red. It is important to proportion the sulphuric acid to the amount of alkaloid, avoiding an excess beyond what is necessary to its perfect solution; and therefore it is better to take the acid out of the bottle by a pointed glass rod, rather than to drop it from the lip.

The first series of experiments was instituted for the purpose of determined how far pure morphia or one of its salts, when

combined with strychnia, would prevent the manifestation of the colour-tests.

Expt. 1. Accordingly, equal weights of the pure alkaloids were rubbed together in a mortar and tested; next, one part of strychnia to three parts of the sulphate of morphia; then one of strychnia to four of the acetate of morphia; then one of strychnia to eight, and finally, one to twenty parts of the sulphate of morphia. In each case the result was entirely satisfactory: the colour-test flashing out, with more or less distinctness in proportion to the relative quantity of morphia, as soon as the margins of the two solutions on the plate came into contact. As intimated above, one solution was made by rubbing the powdered bichromate with a drop of water, the other by triturating a portion of the morphia and strychnia with a drop of sulphuric acid, being careful to use just sufficient acid to insure a perfect solution. I did not consider it necessary to carry this experiment any further, because, in a case of poisoning in which the morphia should be twenty times greater the strychnia, the fatal result and the attendant symptoms would probably be more characteristic of the action of the former than of the latter, and our experiments would be devoted to its detection.

Expt. 2, was an exact duplicate of the first in all of the varied strengths of the two articles, with the simple difference of having them in solution in water acidulated with acetic acid, instead of being in the solid form.

To obviate the necessity of a subsequent concentration of the solutions by heat, the salts or alkaloids were macerated in small measures only, of acidulated water, and to each solution an excess of a solution of potassa was added, and then an equal measure of chloroform, which dissolved out the strychnia, and subsequently yielded it as a filmy deposit in the capsule, by spontaneous evaporation.

With sulphuric acid and bichromate of potassa, the proper test-colour was manifested by the deposit in each one.

In my opinion, these experiments determine conclusively that strychnia can be detected by colour-tests, even when masked by morphia—either as the alkaloid or one of the salts—to the extent of twenty times its own weight.

But the question raised is not so much, whether strychnia will be masked by pure morphia or its salts, uncontaminated with anything else, as whether *morphia in the presence of organic mixtures* has the power of preventing the recognition of strychnia by the usual colour-tests. To determine this latter point, my attention was directed in the next instance, to the devisal of a simple and practical method, by which its recognition could be secured. Upon reflection, I concluded that the most feasible

plan of overcoming the difficulty, would be to separate the poison entirely from the organic mass, by chemical agents and solvents.

After careful investigation and repeated trials, I selected as the agents the three fluids used in experiment 2. These fluids can always be obtained at trifling cost, of easily ascertained strength, and of known purity. They are, 1. Acetic acid, of the specific gravity 1·041 2. A solution of one drachm of caustic potassa in a fluid ounce of water. And, 3. Chloroform.

Acetic acid was chosen, because, when in excess, it has the property of dissolving all of the ordinary salts, both of morphia and strychnia, as well as their tannates, which are generally described as being insoluble; and, therefore, by treating an organic mass containing these alkaloids with this acid, we would obtain a solution of the acetates of morphia and strychnia.

The solution of caustic potassa was selected for several reasons. For instance, in neutralising the acetic acid it forms a soluble salt of potassa—thereby getting rid of the acid when we are done with it. It saponifies the fats of the organic materials; it decomposes their sugars; and it dissolves morphia, but does not dissolve strychnia, thus enabling us to separate the one alkaloid from the other by its agency.

Chloroform was resorted to, for its solvent and volatile properties. Thus, 100 parts of it, according to M. Pettenkoffer, at ordinary temperatures dissolve 20·16 parts of strychnia, and only 0·57 parts of morphia. A fluid drachm of it, holding the strychnia in solution, will evaporate spontaneously in a few minutes if placed upon a saucer or plate.

As the solution of potassa dissolves morphia and rejects strychnia, while chloroform has the reverse property of taking up the strychnia and rejecting the morphia, it must be evident that the conjoint use of these fluids would effect an entire separation of the two alkaloids—the morphia being held by the potassa, and the strychnia by the chloroform.

Another important practical advantage in the use of these fluids is found in their different specific gravities. The chloroform, being the heavier, sinks to the bottom of the vessel containing them, and thus a separation is easily accomplished.

The eliminating properties of the three fluids were determined in the following way:—

Expt. 3. One grain of strychnia and three grains of opium were macerated for three days in a mixture of equal measures acetic acid and water; then filtered, and to the clear liquid equal bulks of the caustic solution and chloroform were added, and the whole well shaken together. Upon subsidence, the chloroform was separated, and a part of it evaporated on a plate. The deposit, thus obtained, was treated with sulphuric acid and

the bichromate of potassa, in the manner before described, when a fine play of test-colours resulted.

In this and the subsequent experiments, care was always observed to have the caustic solution in sufficient excess over the acetic acid to dissolve the morphia, and leave the solution alkaline to test paper.

Having thus determined the practicability of regaining the strychnia, in a separate state, from a solution in which it had been associated with the various alkaloids of opium, I proceeded, in the next instance, to the examination of its relations to morphia in the presence of organic matter. For this purpose a nutritive mass was prepared as the representative of the contents of a man's stomach, if death should occur soon after a meal. The mass consisted of two ounces of minced-meat (such as is used for pies, and containing meat, suet, various dried fruits, cider, spices, and a little brandy), two ounces of bread, a portion of salt, pepper, and vinegar, and two fluid ounces of a strong infusion of coffee, well-sweetened. In other words, an association of the nitrogenous and non-nitrogenous elements of food, with spices, alcohol, tannic acid, and caffein. To this mass, one grain of strychnia and five grains of morphia, which had been previously well triturated together and dissolved in a mixture consisting of one fluid drachm of vinegar and fifteen fluid drachms of water, were now added, and the whole carefully mixed. The mixture was set aside for twenty-four hours to permit the alkaloids to permeate the entire mass, and it was then divided into four equal parts. Each part being made the subject of an experiment, as follows:—

Expt. 4. The first portion, containing one quarter of a grain of strychnia and one and a quarter grains of morphia, was treated with f℥ij of acetic acid (1·041), and f℥iv of water. The mixture having been allowed to stand for sixty hours, was raised to the boiling point and ebullition was maintained fifteen minutes. Having been strained and filtered, equal quantities of chloroform and the caustic solution were added to the filtered liquid; and whole were well agitated together, and after subsidence, the chloroform was separated and evaporated. Upon treating the deposit with sulphuric acid and ferricyanuret of potassium the distinctive play of colours appeared.

This experiment proves that strychnia is not decomposed by a heat of 212°, maintained for a short peried, even though morphia and organic matter be present. The elevated temperature is objectionable, however, from the large amount of starchy matter dissolved by the boiling water, which clogs the subsequent steps of the process.

Expt. 5. The second portion, containing the same amount of alkaloids as the preceding, was maccrated twelve hours in f℥ij of

acetic acid, and f℥ij of water, then strained with pressure and filtered. The resulting liquid was treated with equal measures of chloroform and the caustic solution. The deposit from the evaporated chloroform yielded the proper colours with the test-agents.

This, like many subsequent experiments, proves that it is unnecessary to employ heat; acetic acid, mixed with an equal measure of cold water, being amply sufficient for the extraction of alkaloids from an organic mass.

Expt. 6. The third portion was macerated, like the preceding, for twelve hours, in acetic acid diluted, and then pressed and filtered. The resulting liquid was placed in a capsule before the register of an ordinary house-furnace, and was evaporated to a syrupy consistence by the warm air passing over its surface. To this, the chloroform and the solution of caustic potassa, in equal measures, were applied, and all well mixed. The separated chloroform yielded a deposit which was proved to be strychnia by the test-agents.

By this experiment, we learn that a solution containing both alkaloids in contact with organic matters may be evaporated, by a moderate heat, almost to a solid consistence, without their decomposition.

Expt. 7. The fourth portion was set aside for twelve days in a room having a temperature of 68° to 70°. At the expiration of this period, the mass had become sour and offensive, and was spotted with crusts of mould. It was then macerated for twelve hours in a mixture of f℥ss of acetic acid, and f℥ss of water. After which it was strained, filtered, and evaporated, like the preceding, to the consistence of syrup, by the passage of a current of warm air over the surface. As the resultant liquid was intensely sour as well as bitter, I added two measures of the caustic solution and one of chloroform, and agitated the mixture as in former cases. When the chloroform was separated, and a part of it evaporated in a capsule, the most beautiful and distinctive colours appeared after the employment of the proper tests.

This experiment was instituted for the purpose of ascertaining whether strychnia is liable to undergo any change in the presence of organic matter by the lapse of time, even where that matter has fermented and exhibited evidences of incipient decomposition. The result affords a strong inference that it could be detected in the contents of the stomach after a body had been deposited several days in the grave.

I carried this experiment a step further with a view of determining whether morphia could also be regained from an organic mixture in a state of commencing decomposition. Consequently, after separating the chloroform and caustic solutions from each

other, I added acetic acid to the latter, drop by drop, until it was neutralized. Then a solution of tannic acid was added, and the precipitated tannate was collected and dissolved in acetic acid. The solution afforded a red colour with nitric acid, and a rich blue colour with the persulphate of iron, and was, moreover, very bitter to the taste. Thus establishing, conclusively, the presence of morphia.

Having entirely satisfied my own mind, by the foregoing experiments, that no inherent difficulties exist in the detection of strychnia by the colour-tests when it is associated with morphia and involved in a great mass of animal and vegetable matters, I might with propriety dismiss the subject. But as so large a quantity as a grain of the poison might not be found in the stomach after death, in consequence of the use of emetic remedies, or the partial absorption of what had been swallowed, I concluded to try the process on a much smaller scale, and accordingly performed as follows :—

Expt. 8. Two ounces of minced-meat (similar to that used in experiments 4, 5, 6, and 7), and two ounces of bread, were macerated eight hours in four fluid ounces of water, holding in solution one-hundreth of a grain of strychnia, and one-thirty-third of a grain of the sulphate of morphia.

Half a fluid ounce of acetic acid, with an equal measure of water, was added, and the mixture set aside for six hours. It was then strained, with pressure, and filtered. The remaining clear liquid was divided into two portions, A and B.

One (A) portion was placed in a capsule in a current of air at 70°, and thus evaporated to a syrupy consistence. It was treated with the caustic solution and chloroform, as in the former cases; and, upon the careful application of the tests to the film obtained by evaporating the chloroform, clear and undoubted evidences of the presence of the poison were afforded by a transient yet distinct play of colours.

The other portion (B) was treated directly with a measure of chloroform and two measures of the caustic solution. After mixing these carefully together, the chloroform was drawn off, placed in a capsule, and evaporated spontaneously. A very delicate filmy deposit, of a white colour and bitter taste, was observed in the capsule. A part of this gave, with sulphuric acid and ferricyanuret of potassium, a distinct but evanescent change of colours, indicating positively the presence of strychnia.

To determine more satisfactorily the precise nature of the deposit obtained from this experiment, I evaporated, upon a slip of glass, drop after drop of the chloroformic solution until an appreciable deposit was procured, and to this a drop of dilute nitric acid was added. When dry, it was placed under a microscope at a magnifying power of 100 diameters, and a crop of

well-defined crystals of the nitrates of strychnia and brucia were apparent.

This experiment proves conclusively that strychnia in minute quantities can be regained from organic mixtures, notwithstanding the presence of three times its weight of the sulphate of morphia.

In conclusion, I may be permitted to offer to those who shall be called upon to determine the presence or absence of strychnia in cases of suspected poisoning, a few practical suggestions, viz.:—

1. In testing for minute portions of the poison, success or failure depends entirely upon the care given to the details of the process.

2. In examining the contents of the stomach, the employment of heat is not required for the detection of strychnia, nor should any unnecessary fluid be added which might require subsequent evaporation. Equal measures of acetic acid and cold water, in sufficient amount to thoroughly acidulate the mass, are all that is requisite to extract any alkaloids or their salts that may be present, and, to insure success, these must be reduced to the solid state.

3. In the application of reagents for the production of the colour-tests, care should be observed not to add any more sulphuric acid to the strychnia than what is necessary to dissolve it; and, in like manner, the powdered bichromate of potassa, or ferricyanuret of potassium, should only be moistened, as by touching a glass rod with the point of the tongue and then rubbing it over the powder. In this manner, two saturated solutions or mixtures are obtained, which show the play of colours as soon as their margins are brought into contact, even though the quantity of alkaloid present be very minute.—*American Med. Journal, April*, 1862, *p.* 340.

100.—ON THE EFFECT OF THE PRESENCE OF MORPHIA IN DISGUISING THE USUAL COLOUR-TESTS OF STRYCHNIA.

By Dr. Reese, Philadelphia.

[The following experiments were made upon a case of alleged poisoning by strychnia, in which a man was indicted for the murder of his wife in April, 1861. No trace whatever of strychnia could be detected by the most careful examination, yet all the moral circumstances of the case as well as the symptoms exhibited by the woman clearly pointed to strychnia as the cause of death.]

Experiment 1. The $\frac{1}{100}$th of a grain of strychnia was put into a pint of water, together with several ounces of beef, finely cut up, some starch, common salt, and a few drops of acetic acid (the object being, as nearly as possible, to represent the contents of a stomach after eating). The whole was subjected to moderate heat, strained, pressed, and evaporated, and finally treated after the process of Mr. Staäs. The ethereal solution, on being concentrated, yielded clear proof of the presence of strychnia, both by the colour-test and by the bitter taste. This experiment was intended to prove the delicacy and accuracy of the process that had been employed in the previous analysis of the stomach.

Expt. 2. This was a repetition of the last, except that to the $\frac{1}{100}$th gr. of strychnia there was added three times that quantity of morphia ($\frac{1}{33}$d of a grain). Although the same process precisely was employed, not the slightest trace of strychnia could be discovered by the colour-test.

Expt. 3 This resembled Expt. 2, except that the $\frac{1}{50}$th of a grain of morphia was added to the $\frac{1}{100}$th of a grain of strychnia (or double instead of treble). Here, likewise, the *colour-test* entirely failed.

Expt. 4. In this case an equal amount of morphia only, or the $\frac{1}{100}$th of a grain, was added to the strychnia, and the same method pursued as in Exp. 2. The result was that the faintest possible evidence of the presence of strychnia was afforded, and only after repeated trials.

From these last experiments, Dr. Reese concludes that "*the influence of morphia in preventing the detection of minute quantities of strychnia in the presence of an organic fluid, depends upon the relative quantity of the two alkaloids, the strychnia not being discoverable when the morphia is in excess, and barely discoverable when in equal quantity.*"

As the results of numerous experiments made with various quantities of strychnia and morphia *in the pure state, i. e.* free from all organic mixture, Dr. Reese stated that not only is the difficulty of detecting strychnia greatly increased by increasing the *proportion* of morphia, but that the actual amount of it discoverable is nearly in an inverse ratio with the amount of combined morphia. For example, when the quantity of the two alkaloids was in the proportion of one to one, he was able to detect as small an amount of strychnia as the $\frac{1}{500000}$th of a grain. From this, the minimum amount discoverable progressively rose with the increase of the proportion of the associated morphia, until the last experiment, made with one proportion of strychnia to twenty of morphia, when the smallest quantity that could be detected had increased to the $\frac{1}{5000}$th of a grain.

The amounts experimented upon were, purposely, extremely small, so as to afford fair conclusions in cases of actual poisoning.

In order more fully to settle this question, and to answer the objection that the result might possibly have been different if the two alkaloids had been in the stomach of a *living* animal, the following experiments were made: Half a grain of pure strychnia was administered to a cat, which died in convulsions in eleven minutes. The stomach, examined on the following day, by Staäs' process, afforded clear proof of strychnia by the colour-test. To a second cat, a quarter of a grain of strychnia, and the same quantity of morphia were given, and the stomach examined, as before. The faintest possible evidence of strychnia was obtained, exactly coinciding with a previous experiment made with the organic mixture. To a third cat, the $\frac{1}{20}$th of a grain of strychnia and the $\frac{1}{10}$th of a grain of morphia were given (double the quantity). Here there was a total failure to obtain the colour-test; although the bitterness of the extract, and the fact that the solution produced the characteristic tetanic convulsions in a number of frogs, distinctly proved its existence.

From all the foregoing evidence, Dr. Reese believes that his proposition is clearly established; and he calls the attention of the profession, and more especially of the toxicologist, to its importance in a medico-legal point of view.

In connection with the above, the extreme delicacy of the colour-test for strychnia was noticed, Dr. Reese having been able to determine less than the half-millionth of a grain, when free from organic mixture; and on some occasions, he had even succeeded in procuring the characteristic flash of blue colour, when operating with as minute a quantity as the *one-millionth* of a grain. Among the colour-producing or oxidizing bodies usually employed, he prefers the ferrocyanide of potassium (red prussiate) in conjunction with the sulphuric acid, as being, in his hands, the most delicate.

Along with colour-test, Dr. Reese also noticed the extreme delicacy of the *physiological* or *frog-test.* He had made some interesting experiments with this test, with the twofold view of, first, establishing its comparative value with the colour-test; and secondly, of ascertaining how far the presence of morphia would interfere with its delicacy. Some of his results are here given:—

Expt. 6. A small frog weighing about 40 grains was immersed in a solution containing one grain of strychnia to twelve pints of water (one drop of which would contain the $\frac{1}{215000}$th of a grain): tetanic spasms were produced in fifteen minutes.

Expt. 7. A solution of one-half the strength of the foregoing, in which one drop would represent the $\frac{1}{430000}$th of a grain, produced decided convulsions in a frog weighing 29 grains, after half an hour's immersion.

Expt. 8. The $\frac{1}{500}$th of a grain of strychnia was put into the mouth of a middling-sized frog: it was convulsed, and died in about thirty minutes. The extract, obtained from the abdominal viscera by Staäs' process, although it afforded no perceptible colour-test, had a bitterish taste and produced tetanic spasms in several small active frogs.

In these experiments the frog was put into a small quantity of the solution—not more than about half a fluid drachm, so as simply to cover the hind legs and a portion of the body. The quantity actually absorbed through the skin must, necessarily have been extremely minute; hence the great delicacy of this test, and its value as a *corroborative* proof in medico-legal investigations.

As regards the question whether the presence of morphia would interfere with the value or delicacy of the frog-test, Dr. Reese's experiments clearly demonstrate the fact that morphia, which has been shown so completely to disguise the usual *colour-test* most fortunately produces no observable effect upon the delicacy of the frog-test. We subjoin a few results:—

Expt. 2. A frog weighing 40 grains was immersed in a solution containing one grain of strychnia and eight grains of morphia in twenty-four fluid ounces of water, it exhibited tetanic spasms in five minutes.

Expt. 3. A frog weighing 100 grains was immersed in a solution containing one grain of strychnia and twelve grains of morphia in forty-eight fluid ounces of water. It exhibited the usual tetanic spasms in fifteen minutes.

Expt. 4. A frog weighing 35 grains was immersed in a solution containing one grain of strychnia and thirty-two grains of morphia in six pints of water. It was convulsed in twenty minutes. Another animal rather smaller was affected in five minutes.

Expt. 5. A cat was poisoned by taking $\frac{1}{20}$th of a grain of strychnia and $\frac{1}{10}$th of a grain of morphia. The stomach on being analysed by Staäs' process failed to yield the colour-test; but the watery solution of the extract produced the most decided tetanic convulsions in eight frogs, generally resulting in death.

The *bitterness of taste* of strychnia has also been the subject of experiment by Dr. Reese. He has found it to be decidedly the *most* bitter substance known. One drop of a solution containing a grain dissolved in five gallons of water, yielded a perceptibly bitter taste, equivalent to the $\frac{1}{5000000}$th of a grain; and a solution containing one grain in twenty-five gallons of water, produced a sense of bitterness when a portion of it was forcibly rinsed in the mouth.

The bitter taste of the ultimate extract is an important cor-

roborative proof of the presence of strychnia, in all supposed cases of poisoning; so much so, that it is very questionable whether the *colour-test* can ever be obtained, where the extract fails to yield a bitter taste.—*American Medical Journal, April 1862, p. 351.*

101.—ON THE EMPLOYMENT OF VERATRUM VIRIDE IN SOME OF THE NEUROTIC DISEASES.

By Dr. Ephraim Cutter, A.M., Woburn, Massachusetts.

With the practical physician the Veratrum Viride has been found invaluable in the treatment of sthenic or asthenic inflammatory complaints, as an arterial sedative. It is purely an American remedy, and its introduction in its present character is due to Dr. Wesley C. Norwood, of Cokesbury, S.C., who has made it in the Southern States well known and prized. The writer has thoroughly tested it also by the tincture made by himself, from roots dug by himself. The Middlesex East (Mass.) District and the Massachusetts Medical Societies have also tested a similar preparation, and have by their published testimony born witness to the high claims of the veratrum viride as a sedative agent. Other medical societies, and many private individuals corroborate the same. It is only necessary to peruse the literature of the American medical press to substantiate these assertions.

The writer has given elsewhere accounts of the use of the veratrum in febrile diseases, and the object of the present paper is to present some account of what is known in relation to its therapeutical use in nervous diseases.

Any one who carefully reads the accounts of the physiological effects of the veratrum viride, cannot fail to notice its action upon the nervous system. Speaking strictly, it always acts through the nerves and especially the par vagum. It should thus be termed a nervous sedative. Still, the diminution of the fulness, force, and frequency of the pulse is so manifest, without, usually, any other striking symptom, that it is often, for, therapeutical purposes, called an arterial sedative. Let us inquire what are its physiological effects when pushed in full doses.

1. New England farmers in some districts have long been in the habit of conducting physiological experiments upon crows and depredating birds, for the purpose of protecting their crops. They soak their seed, Indian corn, in a strong decoction of the root, and plant and scatter it also about the fields. When eaten by the crows, *they soon become incapable of flying, and can be easily approached and destroyed by blows.* Left alone, they are said to recover after a time.

2. Percy (Amer. Med. Times, March 16th, 1861, p. 182), states that, "during a series of investigations upon veratria, obtained from veratrum album, and the veratria obtained from the veratrum viride, I noticed that animals poisoned with either alkaloid *lost the power over the locomotive muscles*, and, after death, that the galvanic current did not exercise the same convulsive movements as in cases of death from other causes."

3. In experimenting upon myself with the veratrum viride, one of the phenomena noticed (not constantly) has been a weakness and inability to move the muscles.

4. Dr. S. W. Abbott (assistant surgeon, U.S. gunboat Tioga), states, in his published inaugural thesis upon the veratrum viride, that under its full influence he had "an indescribable feeling of lassitude and weakness in the limbs."

5. Dr. S. Osgood (Amer. Jour. Med. Sciences, August, 1835, p. 302) says that he had stiffness of the voluntary muscles, and faintness likewise.

It is probable that the heart's action is thus reduced in the common method of using the veratum viride without affecting much the other voluntary or involuntary muscles. It is fortunate that this organ feels the action first. Were it affected after the other muscles, the drug would not be so valuable for every day use. It should be remembered that these numbing and paralysing effects upon the voluntary muscles have not been produced physiologically without bringing the subject fully under the influence of the veratrum; therefore, in any therapeutical trials it will be necessary to push on in full doses. Nor need we be much afraid, for alcoholic stimulants and opiates have been found readily to obviate any bad effects, and even without any antidote, as instanced in the case of the crows alluded to, recovery follows after a time.

In regard to the therapeutical uses of the veratrum viride in nervous diseases, the writer would state that his own experience, and that of the society he represents, is confined to affections of an inflammatory type, and organic and functional diseases of the heart. Still, as the literature of the American medical profession possesses some well marked instances of the employment of the veratrum viride in chorea and puerperal mania, and since the writer is endeavouring to lay before the profession of Great Britain this new remedy in all its various uses, he hopes that he will be pardoned if he brings forward some of the published evidence in this direction.

One of the most readable and original articles upon the veratrum viride may be found in the Southern Medical and Surgical Journal, Augusta, Ga., Sept., 1859. It is written by Dr. Paul Delacey Baker, of Eufala, Ala., who is evidently a good observer, and enthusiastically devoted to his profession.

After some forcible remarks upon the *modus operandi* of the veratrum viride, as compared with venesection, and, after alluding to the unequalled powers of the veratrum viride in assisting nature in working cures in the diseases which have already been indicated, the Dr. proceeds to give an account of the value of the drug in the treatment of certain neuroses, and he mentions a case to which he was called on the 14th of February, 1857, reported as one of "fits." The patient was a stout healthy man, of sober habits.

"I found him sitting on the side of the bed seemingly well and perfectly intelligent, unaware, however, that he had had convulsions; all that I could ascertain of his previous history was that he had been similarly affected in childhood. While conversing with him at his bedside, he was suddenly, and without apparent premonition, seized with a frightful convulsion, occasioning frothing at the mouth, and the most violent jactitation of all the voluntary muscles. I immediately opened a vein and bled him profusely, but without the desired result, for, after the lapse of a certain period, with as perfect a return of consciousness as before, there occurred another convulsion of equal severity. In this emergency the excessive muscular relaxation capable of being produced by veratrum viride occurred to my mind, and I reflected that such an effect could only be produced by an influence primarily exerted upon the cerebro-spinal system of voluntary nerves. I instantly determined to act upon the reflection, and administered the veratrum in full and frequently repeated doses, desiring and confidently expecting to produce the same train of distressing symptoms that so alarmed me some years previously. These were nausea, vomiting, purging (rarely observed), *muscular relaxation*, and coldness of surface. "In this I was disappointed, for, *though the convulsions were arrested*, there occurred no other symptom than a relaxed skin with profuse perspiration."

"Since then I have administered veratrum viride in numerous cases of eclampsia in children with such satisfactory results as have established beyond all doubt the power of this agent to arrest convulsions. In these cases the medicine is tolerated in much larger doses than under ordinary circumstances."

Dr. Baker, in June, 1858, undertook the care of a case of chorea in a young lady. It had been gradually coming on for two months. When first visited, her symptoms were distressing to the last degree, the entire muscular system being in continuous and tumultuous commotion. The case passed on from bad to worse notwithstanding the most assiduous attention and energetic treatment. Tonics, antispasmodics, and anodynes were exhausted without avail. The spine and nucha were cupped and blistered without benefit; chloroform was administered internally and by

inhalation. Opium and its preparations seemed to make her worse. So, after the family had given up all expectation of recovery, upon the suggestion of a medical friend who had twice used the veratrum viride in three cases of chorea with the most satisfactory results.

"I at once commenced its administration, and as she was gradually brought under its influence, the turmoil began to cease; the face, which had been worked by its muscles into the most ludicrous and horrible distortion, became placid and intelligent, the head ceased its everlasting jerking, the extremities lay still, the body left off writhing, and the patient quietly passed into a peaceful and profound slumber. This sleep was deep and long, as it was the first, with few and slight exceptions, that she had had in nearly two weeks, and the quiet that the muscles now received was all that had occurred save during those few and short slumbers. At a subsequent visit I found the family cheerful and hopeful, and the patient quiet and sleeping, the pulse but little depressed; there had occurred no vomiting. I roused her, and, to my great satisfaction when awake, there was no jactitation of the extremities, and but very little twitching of the muscles of the face. The veratrum viride was continued, and for the first few days if withheld the commotion began to return. Under the quiet induced, the sleep was so continuous at the outset that the family called the preparation 'the laudanum mixture.' After a time the convulsions ceased altogether, and the patient was restored to health under a course of tonics."

Dr. Terry, of Eufala, Ala., reports three cases of chorea in which the veratrum viride was employed. The first was a child of twelve years.

"It had been confined to bed for three weeks, and was reported to have been under treatment for about six weeks, first, for worms, with calomel, spigelia, worm seed, &c., and, subsequently, for chorea, with cimicifuga racemosa, iron, quinine, and the usual routine treatment, until the child was apparently dying.

"It is not in the power of language to convey a proper conception of the truly pitiable state in which I found this child; it had slept none, neither taken any nourishment for days; it was evidently dying from exhaustion and inanition; the muscular commotion was violent, universal, and unaffected by sleep; the lips embossed with foam worked up by a continual champing of the teeth. Three drops of the tincture of veratrum viride were administered every three hours, the vehicle being gum water. In twenty-four hours I had the gratification to see the symptoms greatly improved, the muscles were much quieter, and the child could swallow without difficulty, the trouble in

this respect had constituted the greatest embarrassment in the treatment. I continued the veratrum viride in connection with iron and quinine. At the end of the fourth day all convulsive action had ceased. Quinine, iron, generous diet, and the veratrum completed the cure."

The second was an ordinary case, in a girl aged fifteen years. After purging, four drops of the tincture of veratrum viride were given every three hours, with the tonics mentioned as given in the first case. Prompt convalescence ensued.

The third case occurred in a woman thirty-six years of age, childless, and subject to menorrhagia, immediately after an attack of which she had a continual nodding of the head, and violent convulsive action in one arm, together with slight jactitation of one leg. In this case six drops of the tincture of veratrum viride was given every three hours. The fourth dose occasioned slight nausea, and after the fifth dose, the convulsive action ceased, when the veratrum was withheld. In eight to ten hours the symptoms returned. Upon resuming the medicine they again disappeared; the doses were then reduced. The case recovered under the tonics mentioned.

Dr. Baker also mentions a case of *puerperal convulsions*, in which chloroform by inhalation, copious bleeding, and forceps were employed. Child dead; weighed eleven and a half pounds. Patient was left quite and comfortable. Seen after four or five hours had elapsed, she was found in a most violent convulsion, which was said to be the seventh since delivery.

"I immediately gave fifteen drops of the tincture of veratrum viride, and directed that she should take ten more in two hours, after which the intervals should be prolonged to three or four hours, according to circumstances. *There occurred no more convulsions, and the woman recovered perfectly; she was not even nauseated, though the medicine was given at regular intervals during the whole night.*"

Dr. B. Woodward, of Galesburg, Ill., in Philadelphia Medical and Surgical Reporter, Nov. 3rd, 1860, states his views and experience in relation to the veratrum viride. He places it very high as a remedial agent, and, among other things, says:—

"In a late case of puerperal convulsions I did not resort to the veratrum, but used the lancet twice, taking away forty-five ounces of blood before the convulsions ceased; but, in about four hours after the last convulsion, the lady became furiously delirious, requiring to be held upon the bed; two doses of ten drops each of Norwood's tincture of veratrum viride quieted her so completely that she slept for four hours, and had no return of the delirium."

At a meeting of the Lancaster (Pa.) City and County Med. Society, held Aug. 22nd, 1860 (reported *ut supra*, Oct. 6th,

1860), Dr. John L. Altee, sen., a most distinguished practitioner, made some excellent remarks upon the use of veratrum viride in puerperal mania. He alluded to the infrequency of the disease, its distressing character, and its usually uncertain and unsatisfactory treatment. He mentioned the case in the hope that the members present might be induced to give the remedy, which in his hands had operated so beneficially, a further trial. It was true that he had used it in one case only, but he was decidedly of opinion that to its influence exclusively the rapid recovery of the patient was attributable, and he would rely with some confidence upon a similar result in future cases if used at a very early period of the disease. He then gave a minute and clear account of the case which came under his care, Nov. 9th, 1859, from the hands of midwives. Labour preternatural; child delivered dead by podalic version. She did well until the 19th, ten days after delivery, when she became silent, suspicious, and distrustful of those about her, without any obvious cause. In the hope that the change was temporary, opium and perfect rest, with careful watching, was enjoined on the 20th. On the 21st, symptoms of puerperal mania were still more developed: it was impossible for the doctor to come near her, his presence seemed to terrify her, and her husband told him that since the previous visit she expressed strong apprehensions that the doctor had poisoned her and meditated her destruction. She had slept little or none, and it was difficult to keep her confined to her bed and her room.

In the hope that some benefit might result by controlling the general circulation and diminishing the nervous excitement, two properties which the veratrum viride possesses in an eminent degree, the patient was put upon five drops of the saturated tincture every three hours, as long as it did not produce nausea, vomiting, or prostration. On the following morning on entering the room he found his patient lying calmly and quietly on the bed, with a total absence of the sinister expression of the day before. She answered him slowly, but in a whisper, put out her tongue, and let him feel her pulse without resistance. Upon inquiry he found that soon after the administration of the third dose of the veratrum on the previous evening she had become calm, had rested quietly during the night, and had remained so. Her pulse was reduced in frequency to 56.

In the use of the veratrum viride in safe doses, and at intervals of three hours, the doctor remarked that in his general practice he had almost invariably observed that the circulation was not brought under its influence until after the third dose; and he had reason to believe that in this case a

decided amelioration in the condition of the patient had occurred. The medicine was continued, and on the next morning there was an entire absence of all unfavourable symptoms. The patient was cheerful and obedient, conversed rationally and freely, and without allusion to her previous unhappy condition. Finally recovered perfectly.

Dr. Hinkle, at the same meeting, gave an account of a case of mental derangement in which six grains of the sulphate of morphia were taken every twelve hours, but until he commenced giving the veratrum viride, the narcotic had not the slightest effect in quieting the patient. He continues to give the morphia in conjunction with the veratrum, and a salutary effect is very manifest; a cure is not anticipated.

This is the evidence on record of the use of the veratrum viride in neurotic diseases. It has been given somewhat at length that the reader might comprehend the facts.

Thus we have a remedy physiologically and therapeutically found a sedative upon the muscular system through the nerve centres. It will not do for the incredulous to say that these data are not true, simply from their want of accordance with his previous notions. There is a much better way of settling the matter, by careful and more extended trials in cases which present the same indications. Should any wish to make them, they can find a reliable preparation made by the writer from the recent dried root, according to the formula of the Middlesex East (Mass.) District Medical Socety, at T. Morson and Son's 19 and 46, Southampton-row, London, W.C.—*London Medical Review, Aug.* 1862, *p.* 57.

102.—CASES ILLUSTRATIVE OF THE ACTION OF VERATRUM VIRIDE.

By Dr. C. Handfield Jones, F.R.S., Physician to St. Mary's Hospital.

Case 1.—[The first case was that of a little boy, aged only two years. He was attacked with symptoms of croup on May 1st. Half a grain of potassio-tartrate of antimony was given every hour, and two leeches were applied at the upper part of the sternum. The breathing was relieved, and the colour of skin was still good. As it was probable that the lull was only temporary, and that as night came on the dyspnœa would increase, it was agreed to give two minims of tincture of veratrum viride every hour.]

May 2nd. Is decidedly better; stridulous respiration nearly gone; no effort in breathing; cough loose; skin moist and cool; pulse 129 at three p.m., in the morning 118. Has had three

two-minim doses at hour intervals; since then four-minim doses at two-hour intervals. No vomiting, but considerable tenesmus, for which one minim of tincture of opium was added to each dose. Voice is still shrill and brassy, and pulse too full and firm. A calomel aperient and warm bath were ordered.

3rd. Is convalescent; pulse 72; child is cheerful, plays with his toys, and calls out for bread-and-butter; all croupy symptoms disappeared; vomited much last night, and was half suffocated during the act; after the vomiting he was considerably better. Every dose of the medicine seems to do good.

He recovered well.

Case 2.—J. M., aged two years and a half, female, admitted March 17th. Ill two days. She has bad cough; breath short; is feverish; hands hot; much thirst; no appetite. Resonance impaired at both lower backs; breathing in both backs very harsh; hepatization no doubt is taking place. Ordered tincture of veratrum viride, twenty-five minims; mixture of citrate of potass, three ounces; two teaspoonfuls to be taken every second hour.

March 20th. Is reported better; much cooler; medicine made her very sick all the first night; it has been given every four hours since yesterday.

21st. Slept well all last night; skin natural; good resonance in both backs; tolerable breathing, with some bronchial râles. The sides of the chest do not seem to collapse in inspiration. To have a drachm of cod-liver oil thrice a day; and two drachms of a mixture of citrates of potass and iron, and chloric ether; thrice a day.

24th. Is much better; appetite improved. Repeat medicine. Ceased attendance.

Case 3.—T. A., aged three years, male, was admitted June 2nd. Ill three days. He has bad cough; is sick and feverish; bowels confined: hands hottish. He is a robust-looking child, with a good colour. Ordered a citrate of potass and dilute hydrocyanic mixture, four times a day; and grey powder and jalap at bed-time.

June 5th. Is not sick, but still feverish; bowels confined; does not whoop, but coughs severely; harsh breathing and râles all through both backs. To have two minims of tincture of veratrum viride, in two drachms of water, every second hour.

7th. Very great relief from the tincture of veratrum viride, which was taken only one day; it caused much sickness, and has been exchanged for citrate of potash saline, ipecacuanha wine, and tincture of camphor, every fourth hour. There is still much cough; but the child is cool, and looks well. There is good breathing in the left and a little râle in the right back.

To continue the mixture, with a quarter of a grain of the extract of belladonna to each dose.

16th. Bad cough; is worse; hands hottish; does not clearly whoop. To have the tincture of veratrum viride, thirty-five minims; water two ounces; one drachm three times a day.

26th. Is a great deal better; just well; hands cool; has scarcely any cough—only when he cries about anything. Discharged.

Dr. Jones made the following clinical remarks:—"The foregoing cases certainly corroborate the very favourable testimony of our American brethren as to the virtues of veratrum viride. I think it is well worthy of more extensive trial by the profession, and I am much inclined to hope that it will prove a substantial addition to our means of controlling inflammatory disease. As far as I can judge, it would have gone very hard with both cases (1 and 2), but for the veratrum viride. Case 1 would, I believe, have died; and case 2 would at best have had a slow convalescence. This case was the first one in which I tried the drug, and I was quite prepared to find at the next visit a considerable extent of both lungs hepatized which with any other remedy I verily believe would have happened. Certainly veratrum viride is no placebo, and will only find favour with the partizans of active interference. Those who have witnessed its action will, I think, find it hard to believe that acute disease is never curable by depressing measures, or that expectant practice is always advisable. It is evidently a remedy very much of the same kind as digitalis, which has been employed on the continent lately in the same way, and apparently with very good results. (*Vide* Hirtz's paper in the *Bull. de Thérap.*, Feb. and March, 1862.) The *modus operandi* of both is clearly to depress the circulation, which digitalis at any rate seems to do by hyperstimulation of the vaso-motor nerves. The cold face and hands and slow pulse of patients under its full action, are just such phenomena as result from stimulation of the vagi and sympathetic nerves."—*Lancet, July* 19, 1862, *p.* 63.

103.—*On Veratrum Viride.* By Editor of the LANCET.—We have found four minims of the concentrated tincture prepared by Tilden, of New York, not merely the largest dose which can be safely administered, but if repeated every four hours it has always in our hands produced great prostration, hiccup, and vomiting. These effects, however, have been transitory, and followed by marked relief of the symptoms of the diseases for which we have administered it, and, what is worthy of remark, a ravenous appetite. In several cases of entonic gout and pneu-

monia, we have seen great benefit from a very few doses. A fit of gout in strong and plethoric patients is more speedily relieved by the veratrum viride than by colchicum, and in some severe cases of pneumonia convalescence immediately ensued.—*Lancet, Aug.* 30, 1862, *p.* 238.

104.—ON THE ACTION OF DIGITALIS.

By Dr. C. Handfield Jones, F.R.S., Physician to St. Mary's Hospital.

Digitalis is a confessedly valuable remedy in a variety of instances. The most common and by no means incorrect notion of its action is, that it diminishes cardiac action and arterial impulse, slows and tranquillizes the circulation when it is over active. The recent observations of Hirtz (Bullet. de Thérapeut. February and March, 1862) of the beneficial effects of digitalis in inflammations, are very accordant with this view. He finds the drug to have great power in slowing the pulse and lowering the temperature; concurrently with which, resolution of the inflammation sets in. But many are well convinced that it can also increase cardiac action, give tone and power to a weak and failing heart; and that too when exhibited in the same doses as are believed to have the contrary effect.

How can this be? How shall we reconcile such opposite views? We think of its action upon other organs; and we remember that it provokes the kidneys to diuresis, the uterus to contraction, and the stomach and intestines to vomiting and purging. Its hæmostatic operation almost unnecessarily involves a contracting of the arterial coats, so as to diminish the flow of blood to the seat of hemorrhage. All this looks like stimulation, rather than depression. We must say the same of other results of empirical observation. One is, that digitalis does not exert its diuretic action nearly so well in persons of sthenic habit, of tense fibre, and cordy, *i. e.*, firm pulse, as in those of asthenic condition. Bloodletting and purgatives are recommended as preparatives for its administration to the former. The other is, that large doses of tincture of digitalis are not unfrequently followed by the best effects in cases of delirium tremens attended with great prostration of nervous power (See case in Med. Times and Gazette, Sept. 29th, 1860, by Jones, of Jersey). Mackenzie (Lancet, March 8th) records his experience of large doses of digitalis in delirium tremens. He states that, in two cases, they had the effect of changing a state of timidity into the fury of acute mania. One died; and the heart in one was found very flaccid, but almost empty. This state of emptiness seems almost to imply that it must originally

—*i.e.*, at the time of death—have been contracted. Here, then, we must suspend judgment; we know not which view to take. Is digitalis a depressant, or a tonic? What is the truth respecting it? Here, it seems to me, we want the exact experimental observer, trained to scientific investigation. And in this instance, I am glad to say we have, if not complete and final yet some satisfactory and light-giving researches to appeal to. Before producing these, suffer me to remind you of the following facts:—1. That the pneumogastric nerve has very positively an influence on the heart through its cardiac branches. 2. That the sympathetic nerves also influence its movements. The influence of the pneumogastric is shown by stimulating it, which slows and arrests the movements of the heart; and again by dividing it, which renders its movements greatly more frequent. The only observers who dissent from these statements are Moleschott and Schiff, who seem to regard the vagi as having the same influence over the heart as the sympathetic. From my own experiments, I cannot doubt that division of the vagi in mammalia at least does greatly accelerate the heart's action. In a cat whose vagi I divided, the heart beat for more than twenty-four hours after the operation, at the rate of 200 to 220 in the minute; while, when the left vagus only was divided, the rate was 100 per minute.

One other point I wish to ask you to notice; that arrest of the heart's movements may take place in two different ways—viz., either by paralysis of the muscular tissue, rendering the heart incapable of driving on the blood which pours into it; or by persistent tonic contraction. In the former case, the cavities will be open, and distended with blood; in the latter, closed and empty. In either case the arteries would cease to receive blood. It then becomes an interesting question which state is found in animals killed by digitalis. I have performed various experiments to investigate this point, and will shortly state the results. A young cat was injected subcutaneously with ℥xx. to ℥xxx. doses of tincture of digitalis at one-hour intervals. Death occurred in about five hours; and the left ventricle was found very firmly contracted, the cavity very small, the right ventricle somewhat less closed. In another, two drachm doses, at five hours interval, caused death, with a firmly contracted left and a moderately distended right ventricle. This cat, an adult, was killed by two and a half drachms of the tincture. A third cat, whose vagi nerves were divided, had injected in nine hours half an ounce of tincture of digitalis, and, though prostrated, was recovering; she was killed by sixty drops more in another half hour. The left ventricle was found firmly contracted, the cavity almost wholly obliterated; the right ventricle was rather dilated.

The subject of the first experiment was killed by 110 drops in

about five hours; the second, by 150 in about sixteen hours; the third withstood 240 in eight hours. This certainly looks as if the abolition of the influence of the vagi rendered the heart less sensible to the action of digitalis. Animals killed by the injection of tincture of aconite, or the inhalation of chloroform, had both sides of the heart evidently more dilated than those dying from digitalis.

I do not consider these experiments as at all complete; but they appear to me to justify provisionally the conclusions: 1. that digitalis, when it kills, does not at least necessarily do so by paralysing the heart; and 2, that division of the vagi seems to lessen, though not to abolish, the action of digitalis on the heart. Bernard, I ought perhaps to mention, ranks digitalis with poisons that directly abolish contractility in the muscular tissue, and is led by the results of his experiments to the belief that it has no action on the nervous system. He states, however, that immediately after death the heart is found contracted, rigid, motionless, and totally empty—a condition which is certainly much more like tonic spasm than paralysis.

But now to cite the investigations of which I was speaking. (Schmidt's *Jahrbücher*, vol. cxiv, pp. 16, 182.) Traube divides the vagi nerves in a dog; paralyses his voluntary movements with curare, keeping up artificial respiration; adjusts a dynamometer to an artery; observes the force of the heart's contraction, as measured by a column of mercury; and then injects a strong solution of digitalis into the jugular vein. The height of the column before the injection being 124 *millimètres*, it gradually rises, and attains in about four minutes the level of 260, and again declines in about ten minutes from the beginning to 176. A second injection of digitalis was now made, which caused the column to fall rapidly, and the heart soon ceased to beat. This experiment proves that digitalis acts on the sympathetic, as well as on the vagi nerves; and that its action is first stimulating, and subsequently paralysing. With this latter statement I am not fully satisfied. I should wish to know whether the heart was firmly contracted, or the reverse; as it seems to me possible that the action might be arrested through excess of stimulus. Traube believes that the amount of arterial pressure depends on the varying degree in which digitalis acts on the vagi and sympathetic nerves. If it excite the latter and enfeeble the former, the pressure is increased; if the reverse be the case, the pressure diminishes.

Winogradoff's observations are to the same effect. He states one conclusion which, as he says, has an important bearing upon practice; that digitalis, as it does not diminish the arterial pressure may be given safely in morbid states attended with diminution of the blood's force in the arteries, especially in

heart-disease with insufficient compensating hypertrophy. He does not believe that digitalis acts on the vagi or the medulla oblongata in slowing the heart; because a weak galvanic current applied to this nerve, while it slows the heart, lowers the arterial pressure, which digitalis does not do. From examination of the urine, he finds that digitalis diminishes the metamorphosis of tissue. Germaine also states that digitalis does not enfeeble the contractions of the heart; but, while it slows them, augments their force. From the above investigations, it seems to be tolerably certain that digitalis, in the first and milder degrees of its action, is a tonic or excitant to the heart; and that subsequently, in its more energetic operation, it arrests its movement. But it does not to my mind appear clearly made out how this arrest takes place; whether the heart is, to speak shortly, paralysed or tetanised; whether it is rendered too weak to contract and drive on the blood, or too spasmodically contractile to relax to receive it. Yet the solution of this question is all-important to the right and safe use of this valuable drug. If it paralyse the heart, if it act like aconite, we must eschew it in cases manifesting anything like debility of the circulation, and reserve its use for those where the firm hard pulse tells of a strong impelling force. If, on the other hand, it excite the heart, and the risk be from over-stimulus, especially when the organ is irritable and active, we see that digitalis finds its opportunity in cases of enfeebled circulation, where there is no fear of the cardiac stimulus being too potent. That the latter is the correct view, I am much inclined to believe. How otherwise could it ever happen that digitalis should produce such remarkable benefit as it often does in cases of enfeebled heart? How is it that, in a disease of so much debility as delirium tremens often is, a dose of digitalis twenty times as large as that commonly administered causes no prostration, but the reverse? Now, if you are inclined to think me speculative and theoretical in all this, remember, I pray, that my speculations concern matters of the highest practical interest: and that what I urge is, that to turn this speculation into certainty, labour and expense would be well bestowed. Should it prove so, as I have suggested, we might come to regard digitalis as our cardiac tonic, specially to be resorted to in cases of asthenia and peril from failing circulation, because in such there could be no fear of over-stimulating.—*Brit. Med. Journal, Aug.* 23, 1862, *p.* 188.

105.—ON THE ACTION OF OPIUM.

By Dr. C. Handfield Jones, F.R.S., Physician to St. Mary's Hospital.

We know that opium has a powerful astringent effect, not only controlling and arresting morbid discharges, and even some

inflammations, peritoneal and ocular, but locking up, as it is termed, even the natural secretions. We know also that opium has a sustaining power, enabling the system to endure severe fatigue, and to withstand better the exhaustion of disease. Its exciting influence on the brain prior to the stage of sopor is well known, and sometimes appears to be the only result of its administration. That it often causes diaphoresis is admitted, though I do not think this effect is by any means constant. How shall we refer these various phenomena to anything like a common mode of action? How shall we frame to ourselves a rational account of the operation of this remarkable drug? If we consider it as a direct narcotiser, or sedant of nervous tissue, how shall we explain the production of excitement, the averting of fatigue, and the arrest of diarrhœa? All these phenomena seem more likely to be prevented than produced by narcosis. I will again ask you to follow me in an attempt to explain these difficulties. The very important observations of Durham, Ackerman, and Bedford Brown, as to the state of the cerebrum in sleep, are material to this question. They find, you will remember, that the blood-vessels of the brain are empty during sleep, compared with their state of repletion during waking hours. Correspondingly we find, during opium-poisoning, the face pale and the scalp cool, showing a lessened circulation through the branches of the external carotid. The overpowering drowsiness, which exposure to intense cold produces, is very probably dependent on a similar anæmia of the brain; the congestion which is often found after death being no doubt the result of mere venous engorgement during the final stage. Dr. Ogston gives two cases of death from cold, in which the brain and its membranes were remarkably pale and bloodless; and another in which the membranes and surface were in the same state (British and Foreign Medico-Chir. Rev., Oct. 1855). See Kussmaul and Tenner's twenty-second conclusion (New Syd. Soc. edition, p. 107). I am much inclined to believe that the soporific action of opium is, at least in part, dependent on a contraction of the cerebral arteries, occasioned by the influence of the drug on the vaso-motor nerves of those vessels. The supply of blood being shut off, the functions of the hemispheres are for the time in abeyance.

The above had been written several weeks before I happened to refer to Dr. Fleming's important and interesting experiment of procuring sleep by compression of the external carotids. He well remarks, that it may be the means of throwing light on the causes of ordinary medicinal and hypnotic sleep, and of coma. (Brit. and For. Medico-Chir. Rev., April 1855). Many years ago, when I was in very weak health from over-work, &c., I was quite unable to sleep at night from this cause. Though deadly weary and drowsy while sitting up, I had hardly laid my head

on my pillow before the arteries of my head began to throb, and soon all feeling of sleep was banished, and I was wide awake and restless. Evidently the toneless vessels admitted an over-supply of blood, which goaded the weary brain to renewed excitement.

This view is in accordance with the action of opium in restraining diarrhœa and locking up secretions, with its curative efficacy in some inflammations, and with its tonic and sustaining operation on the nervous system. It does not, however, account for the contraction of the pupil (which is widened by stimulation of the sympathetic); nor for the diaphoresis, when it ensues. It is, however, probable that the former may be ascribed to a special stimulation of the third nerve; and the latter to a similar action on the excitor nerves of the perspiratory glands. Such secretion-fluxes have been obtained by Bernard and others, by stimulation of particular nerves; and I can state, from repeated observation, that profuse salivation is a constant result of the administration of opium to cats. That a moderate dose of opium produces vigorous uterine contractions, is, I suppose, an admitted fact. Dr. Churchill speaks confidently of the beneficial effect of a drachm of tincture of opium in flooding, whether before or after delivery. The stimulant action of opium on chronic asthenic ulcers of the leg is well known, and has been excellently illustrated, with various other particulars, by Mr. Skey (Lancet, Feb. 3rd, 1855). He describes opium as "a most valuable stimulant of the vital powers, and as maintaining an equable balance of the circulation throughout the body." This, however, is an example of its tonic action on the cerebro-spinal nerves, not on the sympathetic. Mr. W. Cooper remarks, in his Memoranda of Ophthalmic Surgical Pract. (Lancet, June 28th, 1862), that the controlling influence of opium on the capillaries is well known. He uses small doses of opium, frequently repeated, in hay-fever; and finds that, in some cases of conjunctivitis, a watery solution of opium has a most beneficial effect when locally applied. In other cases, it acts as an irritant, and aggravates inflammation. Here we have the stimulating effect of opium exerted either on the vessels or on the tissue. There is a noteworthy paper by Mr. B. Bell, on the Therapeutic Relations of Belladonna and Opium, which bears upon this subject (Edin. Med. Journal, July 1858). He quotes a case where a man, under the poisonous influence of opium, took six drachm doses of tincture of belladonna, which removed the coma, increased the respiration from 4 or 5 to 20 or 25 in the minute, dilated the contracted pupils, improved the strength and frequency of the pulse, and caused the cold and pallid countenance to become flushed, and the whole body warmer. Mr. Bell's own observations illustrate the converse action—the removal of flushing and

congestion of the head-space, with other symptoms of poisoning from atropine injection, by the subsequent administration of morphia in the same way.

Mr. C. Lee has recently recorded several similar instances (American Journal of Medical Science, Jan. 1862). The doses of the antidotes were such as would have been poisonous had not an opposing influence been in play. I have myself experimented with a rabbit, and produced well-marked stupor by the injection of a grain and a quarter of acetate of morphia; which was speedily removed by the subsequent injection of an eighth of a grain of atropine.

A very important question here arises for consideration; viz., whether the same remedy can have a different or opposite action in different parts of the same body. Belladonna seems, beyond question, to dilate the arteries and capillaries of the head and face, herein directly opposing opium. Dr. Brown-Séquard, however, has satisfied himself that it contracts the bloodvessels of the cord. Can it act differently on the brain and on the cord? All this wants looking into. It seems probable enough that the beneficial action of belladonna in epilepsy depends on its obviating the tendency to spasmodic constriction of the cerebral arteries, which appears to be an essential element of the disorder.

The general tendency of all the above considerations seems to me to point towards this conclusion; that opium is to be regarded chiefly as a toner or exciter of nerves; first, and in smaller doses, of the cerebro-spinal; and secondly, and in its more potent action, of the sympathetic. The second action is, in some of its results, counter to the first. It causes cerebral anæmia and sopor precisely in the same way as it stills an intestinal profluvium, or arrests the flow of bile, or checks an uterine hemorrhage. On the above view, we can readily understand how opium so often disagrees with persons of irritable and weakly nervous systems, acting, perhaps, in the manner diametrically opposite to that intended. The cerebro-spinal nervous centres are more acted on than the vaso-motor nerves; and the result is, therefore, wakefulness and excitement. With regard to the local action of opium, I think it is, first, clear that it is not a sedative in the same way as aconite; it is more or less useful in removing pain; but does not cause numbness. It is, also, commonly associated with stimulants, as chloroform, camphor, turpentine, or ammonia, which do not seem at least to impair its efficacy. Further, it should be remembered that pain or dysæsthesia are very often closely connected with a state of debility; indeed, so intimately that it is difficult not to believe that the suffering nerve is in a like condition. Opium as a stimulant tonic may well relieve such states. — *British Medical Journal, Aug.* 23, 1862, *p.* 190.

106.—ON THE USE OF PODOPHYLLIN AS A PURGATIVE.

By Dr. S. O. Habershon, Assistant Physician to Guy's Hospital.

[The present desideratum is perhaps not so much to increase the number of remedies, as to learn more of those we already possess. Still there is often some little difficulty in the selection of an aperient which will unload the bowels without producing pain, and yet be more active than rhubarb and aloes, but less irritating than jalap, colocynth, and scammony. Such a remedy we hope to find in podophyllin.]

Podophyllin is the term now applied to the resinous extract from the rhizome of the *Podophyllum peltatum*, a plant usually regarded as belonging to the order Ranunculaceæ. The podophyllin which I have used has probably been a mixture of resinous extracts, and has had a yellowish-brown colour. It appears to be more active than jalap, and when given (as I have generally prescribed it) gr. ½—j, with gr. j—ij of extract of henbane, directly after a meal, the bowels have acted efficiently and without pain in about twenty-four hours. The evacuations were pultaceous, not generally watery, and no pain was produced, unless the pill had been hastily repeated. Sometimes, however, quarter or half a grain acted with pain, and produced an irritable condition. In one instance the nurse gave seven to ten pills, which had become agglutinated together, each one containing a grain of podophyllin. Violent vomiting, profuse watery evacuations, and severe colic of several days' duration were set up, but no further ill effects followed. In this large dose its action closely resembled a full dose of elaterium. Some combine it with calomel and bitartrate of potash, when its action is more hydragogue; others, to prevent griping, mix it with belladonna, with cannabis indica, and other substances. Chloride of sodium is said to increase its action, and lactic acid to check it.

Podophyllin acts as an irritant when applied to the skin or to the mucous membrane of the intestinal tract. It resembles jalap and scammony in its action, but in a small dose is more efficient than the former, and less irritant than the latter. In the constipation of enteritis, or of severe inflammatory disease, it is not an advisable remedy. Direct action on the liver has been attributed to this drug, and in some instances of jaundice and of hepatic disease, in which motions were pale in colour, increased depth in colour has followed its action, so far tending to confirm the theory of its cholagogue action, although bile elements may be discharged without great depth of colour in fæces. In chronic portal congestion, either from disease of the

liver or secondary obstruction from cardiac or pulmonary disease, podophyllin is a suitable remedy; so also in disease of the brain of a congestive character, and in melancholia, threatening apoplexy, and other similar conditions, it may be very applicable. In ordinary constipation of a non-inflammatory character it might be used; but in the constipation of children we could not recommend its use. As an emmenagogue it has been highly spoken of, and in this respect, perhaps, resembles black hellebore, of which my late colleague, Dr. Hughes, had a very good opinion. —*Guy's Hospital Reports*, 1862, *p.* 120.

107.—ON PHLORYDZINE, AND ITS USES.

By Dr. DE RICCI.

[Phlorydzine, as may be seen from a previous article, published in 1842, (*Retrospect*, vol. v., p. 119), is not by any means a new remedy. It is there stated as the result of M. Lebandy's researches, that it is a powerful febrifuge, having this advantage over quinine that it never induces gastralgia. The present paper gives the result of a long series of experiments continued during many years.]

Phlorydzine is a neutral principle which exists in considerable quantities in the bark of the root of the apple, plum, and cherry tree—also, I believe, in some others; but principally in the root of the apple tree, from which source we are mainly supplied. Phlorydzine, as at present in the market, is in the form of a powder of a dirty white colour, consisting of broken up silky needles, in appearance not unlike quinine which has not been well bleached. When rubbed between the fingers it has a soft velvety feel, very like that of French chalk; but if the substance be crystallized by the slow cooling of a dilute solution, previously treated with freshly prepared animal charcoal, it will then be obtained perfectly white, and in the form of long, flat, brilliant, silky needles. Its taste is peculiar; it is very bitter at first, but ends by leaving a somewhat sweetish taste, with a flavour of apples, on the tongue.

The cases in which I have employed phlorydzine with most success have been those forms of atonic dyspepsia, occurring in delicate females, to whom it was impossible to administer either bark, quinine, or salicine in any shape, without bringing on serious nervous excitement. I have also found it extremely well adapted for the treatment of young children of delicate constitutional habit, or when recovering from hooping cough, infantine fever, or any other disease. I have given it in these cases combined with syrup of phosphate of iron and manganese, and with syrup of iodide of iron. The doses I have been in the

habit of employing are five grains, three or four times a day, for adults, and proportionately smaller ones for young children.

I recommend a trial of this remedy in every adult case where quinine is not easily tolerated, as also in every case where young children require a tonic treatment either in consequence of constitutional debility, or from the debilitating effects of some previous illness; it is much more easily taken than either bark, quinine, or salicine, the bitter being of an agreeable kind, and changing, as I said above, into a sweetish taste, with the flavour of apples. I have never known it to disagree, even in large doses of 10 grains three or four times a day; and I have, in very many instances, found it of great use where other tonic substances could not be taken.

In prescribing phlorydzine it must be borne in mind that it is almost insoluble in cold water; but the addition of a very small quantity of ammonia instantly dissolves it; thus, by adding to an eight ounce mixture, containing a drachm of phlorydzine, a few drachms of aromatic spirit of ammonia, the fluid, which previously was milky, becomes perfectly clear; and the addition of the aromatic spirit rather improves the mixture than otherwise.

If a small quantity of phlorydzeïn be previously added to the water its solving power is increased, and the mixture will be of a beautiful blue colour, but it will not dissolve as much phlorydzine as when aromatic spirit of ammonia is employed.

I could subjoin several cases from my notes where the effects of phlorydzine have been manifestly favourable; but I do not wish to tire the attention of the reader, and shall content myself with giving the details of one which came under my notice last summer. It was an unmistakeable case of chlorosis occurring in a young lady of a decidedly strumous constitution, well characterised by the clear blue eyes, broad square under jaw, transparent complexion, and decided auburn hair. Her mother informed me that she had been ill for about 18 months, and that during that period many remedies and many doctors had been tried, but unavailingly, as her daughter could not take iron in any shape, and that was the drug which had been invariably prescribed. I at once took the opportunity of telling her how injurious it was to the patient, and how unfair towards the medical man to be so constantly changing her physician, and gave her to understand, in a very determined, still most courteous language, that I would much rather have nothing to do with the case if she did not intend to give me fairer play than she had given to the other doctors. I suppose I rather astonished the elder lady, who had not been in the habit of hearing such decided language, and which to her ears sounded somewhat almost like impertinence; she, however agreed to leave her

daughter in my hands for at least four months. Taking for granted that there was either some idiosyncracy against the use of iron in the case, or that her nervous system was, from disease and weakness, unable to bear it at the time, I commenced by prescribing grain doses of quinine, in wine, three times a day, requesting her to come again in a few days to inform me of how it agreed. She returned on the second day; she had then taken four doses of quinine. She told me it had affected her in a very strange manner; shortly after each dose she had been attacked by the most unpleasant feelings in her head; it was not pain she felt; it was rather a strained, tightened feeling inside her head, especially at the back of her eyes; she did not complain of noises in the ears, but every sound seemed much louder than in reality; and her own voice, when speaking, reverberated and re-echoed through her brain in the most distressing manner. This state of affairs generally commenced about half an hour after taking the quinine, persisted for about two hours, and was followed by considerable lassitude. I at once stopped the use of quinine, and prescribed two-grain doses of salicine in infusion of orange peel, with aromatic spirit of ammonia and chloric ether. In three days the patient returned, giving a somewhat better account of herself; but the effect of the salicine had been unsatisfactory; it had acted in a similar way to the quinine, only in a lesser degree. Her appetite was, however, improved, and she felt less languid, so I determined to persevere with tonics; and thinking this was a favourable case for giving a trial to phlorydzine, I prescribed five grains of it in half a wine-glass of sherry, three times a day. I did not see the patient for a week—when she came to tell me that the medicine *agreed quite well*, that her appetite was very much improved, that she had lost much of her lassitude, and that on the whole she felt considerably better. I desired her to persevere, and to return in another week. Before the end of that time, however, she walked into my study one day to tell me that she felt a most uncomfortable sensation of weight in her stomach every day after dinner; that her appetite was greatly improved; but that after eating she always felt uneasy, and especially after dinner, when she always felt as if she had swallowed a lump of lead; but that she was quite free from any unpleasantness in her head. I desired her to continue the phlorydzine; and, in addition, to take, after her dinner, 10 grains of pepsine sprinkled between two small and thin slices of bread and butter. I saw no more of my patient for a fortnight; at the end of that time she again made her appearance in my study; she looked brighter and more cheerful than usual; she told me that she had quite lost the unpleasant feeling in the stomach after taking the pepsine, which she had now dropped

for the last four days without any inconvenience; and that the phlorydzine was agreeing well with her. I thought it now high time to begin the introduction of a little iron into her system, and I gave the citrate of iron and strychnia, in grain doses, three times a day. This agreed perfectly. After a short time I ordered her to the sea side for change of air; and had the satisfaction of seeing her return to town in perfect health.

In this case it is evident that the intolerance of the iron was not due to any constitutional idiosyncracy, but to an enfeebled condition of the gastro-intestinal tract; this was to be corrected and removed by such remedies as increased its tone and vigour. Quinine was tried, but she could not bear it; then salicine was tried, but also unsuccessfully; against these substances she evidently had an idiosyncracy. Phlorydzine, on the contrary, was well borne, and perfectly succeeded in carrying out my views. I could add several cases more, especially among young children, where phlorydzine fulfilled my purposes to perfection, and where neither bark nor quinine could be tolerated.

In conclusion, let me again recapitulate the advantages of this drug: it is tolerated where neither quinine, nor salicine, nor bark can be administered with impunity; it is particularly adapted to young children; it is not expensive; and we are not depending for its supply on the rapidly diminishing cinchona forests of South America, but have abundant supplies of it at home.—*Dublin Quarterly Journal, Aug.* 1862, *p.* 39.

108.—ON CIMICIFUGA RACEMOSA.

By the Editor of the Lancet.

The tincture of cimicifuga, in doses of thirty minims three or four times in twenty-four hours, has proved a most valuable nervine and calmative in many cases of pseudo-rheumatism and obscure nervous pains. We are disposed to admit the correctness of the observations of the American physicians, who allege that it has a peculiar action on the uterus. In the irritable condition of that organ, often observed in patients for some time after menstruation has ceased, or irregular when about to cease, and marked by pain more or less periodical in the lumbar region, cimicifuga affords rapid relief. In neuralgic pains, often met with in such patients in other localities, it is equally beneficial. Females at the period of life we are speaking of frequently suffer from a distressing pain in the upper part of the head, recurring with greater severity at night. These cases are very satisfactorily met by this remedy. Pains in the mammæ also, whether referable to uterine disturbance or to pregnancy, are relieved by the cimicifuga very speedily. In lumbago it is

almost a specific, as has been noticed by Dr. Simpson. A great advantage of the tincture of the cimicifuga is that it is not only rather pleasant to the taste, but very agreeable to the stomach, rather improving the appetite than otherwise. Larger doses than thirty minims, however, as a drachm for instance, will in most persons produce an unpleasant tightness and dull pain across the forehead.—*Lancet, Aug.* 30, 1862, *p.* 238.

109.—ON IRIDIN OR IRISIN.

By the Editor of the LANCET.

[Iridin or irisin is one of a class of concentrated preparations, not to be accepted as an accurate and determinate composition, but merely provisionally as a convenient form of administering the remedy. It is obtained from the rhizome of the *iris versicolor* (blue flag). Most of the plants belonging to the natural order Iridaceæ are possessed of cathartic and emetic properties.]

Iridin forms a dark-brown powder, readily converted into pills by adding a small quantity of mucilage of gum arabic. The ordinary dose is from two to five grains. Its action is that of a mild aperient cholagogue, and it is alleged to be diuretic, and indeed to excite all the secretory organs. "Physicians," says one writer, "occasionally meet with patients upon whom podophyllin, even in small doses, exerts a powerful and long-continued influence not easily obviated; in such cases iridin seems to be more especially indicated."

In our hands iridin has produced effects very similar to those occasioned by a combination of blue-pill, rhubarb, and aloes. It seldom fails to produce a mild catharsis with bilious evacuations; and appears to possess the advantages of (1) not requiring the addition of a mercurial; (2) not irritating the rectum as aloes is apt to do; and (3) it has no astringency, and therefore does not produce subsequent costiveness like rhubarb when given alone. In a sluggish state of the bowels arising from torpidity of the liver, or when the stools are pale, particularly as we find them in the intervals of overt attacks in gouty persons, we have found the iridin one of the best aperients—much gentler than podophyllin, and more reliable when a slight cholagogue action is required to be maintained for a lengthened period.—*Lancet, Aug.* 30, 1862, *p.* 239.

110.—ON LEPTANDRIN.

By the Editor of the LANCET.

Under this name a black shiny powder in sealed bottles is imported, which some makers avow is a mixture of the precipi-

tated extract with powder of the crude root, while some others profess by some secret process to be able to reduce it to a permament powder without admixture. It is the province of pharmaceutical chemists to present us with a better and more scientific preparation of the plant; but in the meantime we see no reason to reject the best we have, if indeed it represents the properties ascribed to it as a remedy. These properties are certainly very desirable in practice.

The effect of leptandrin is to gently excite the liver and promote the secretion of bile without producing the least irritation of the bowels. It does not purge at all, and even its laxative effect is very slight, while on the stomach it acts as a decided tonic. This remarkable action renders the leptandrin most valuable in diarrhœa and chronic dysentery, where the alvine secretions are destitute of bile and the mucous membrane is irritable. It is said that under its influence the stools soon assume a natural colour and consistence. In all cases requiring a mild stimulus to the liver, such as we usually seek in small doses of blue-pill, with opium to prevent purging, the leptandrin is better.

In combination with quinine it is alleged that it renders the latter more certain and efficacious in the treatment of intermittents; and, given in continued doses after powerful evacuation by podophyllin or calomel, it maintains a slight but effectual action restorative of a healthy secretion of bile and daily well-formed stools. Combinations of this with the preceding article (iridin) and small doses of podophyllin will strike practitioners as being very useful in many cases.

One of its advocates writes respecting leptandrin: "This is not, strictly speaking, a cathartic; it is aperient, alterative, and tonic. Its effects on the liver are peculiar. In cases of children with diarrhœa, where there is evidently a lack of the proper biliary secretion, but where, owing to the already irritating condition of the bowels, the ordinary medicines for exciting the liver are inadmissible, this seems to be the very thing needed. While it acts freely on the liver, instead of purging, it only changes the discharges from the light, watery, slimy condition to a darker bilious state, rendering them more and more consistent until they become perfectly natural, without having been arrested entirely, or at any time aggravated. At the same time it acts as a tonic, restoring the tone of the stomach and improving the digestion. It is a valuable remedy in dyspepsia."

It is also highly commended in epidemic dysentery and infantile cholera. The dose of leptandrin is from half-a grain to two grains three or four times daily.—*Lancet, Aug.* 30, 1862, *p.* 239.

111.—ON PHYSALIS ALKAKENGI.

By the Editor of the LANCET.

Happily we are not responsible for the uncouth terms in use by botanists. The public, however, seem to be satisfied with them. The above term is to be found in the ordinary lists of garden plants, to designate a perennial herbaceous plant belonging to the natural order Solanacea, cultivated in this country because it is green and yields its berries during the winter months. The berries are used to enliven with their red colour the bouquets sold in Covent-garden when other flowers are scarce. It is, in short, the *winter cherry*. This plant grows wild extensively in the south of Europe, where the berries are eaten and are sometimes used to impart a ruby-red colour to beer. These berries are about the size of a cherry, nearly enveloped by a calyx, and contain numerous flat, kidney-shaped seeds. Their taste is acid, with a slight bitter. The leaves, capsules, and all parts of the plant have a strong bitter taste, which appears to reside in a principle which has been isolated and designated *physalin*.

The mode of obtaining this principle is as follow: The leaves and capsules are treated with chloroform, which, when saturated, is evaporated, and the residue dissolved in boiling alcohol. This solution is then decolorized by means of animal charcoal, filtered, precipitated with water, washed, and dried.

Physalin is a light powder, with a shade of yellow: its taste is at first slight, but afterwards very bitter. It is slightly soluble in cold, more so in boiling water, very soluble in alcohol and in chloroform. It is aperient and diuretic, and has been recommended in gravel and other disorders of the urinary organs. These properties have been attributed to the plant from the time of Dioscorides, and it has probably never been wholly discarded from domestic practice. French authors have recommended it in ischuria renalis, and it has even been extolled in epilepsy; but it seems to be destitute of the narcotic properties commonly belonging to solanaceous plants. Ray states that the berries, taken every morning, have been known to prevent the attack of gout. Recently a French physician has published a pamphlet on the subject of gout, in which he asserts that the physalis alkakengi is a remedy more efficacious that colchicum, whilst it is devoid of the objectionable properties of the latter.

The attention of the writer was called to this substance by patients who alleged that they had experienced great and remarkable benefits from its use in overt attacks of gout, and the erratic symptoms called masked gout. On this ground alone

we have deemed it proper to give it a place in these papers for experiment, without further vouching for its efficacy.

The French author prepares what he calls alkakengine in the following manner:—He takes the flowers, calyx, and unripe berries, carefully dries them, and reduces them to fine powder. This he makes into a moist paste with water, adds a little slaked lime in fine powder, and treats the mass with boiling alcohol; he filters and distils off the alcohol, and the residue is his alkakengine.

To administer this he mixes it with an equal portion of solution of silicate of soda, and forms it into pills with powder of the *Teucrium chamædrys* (germander). Of these pills he gives five or six during the day in an overt attack of gout, and two or three for slighter symptoms, increasing or diminishing the number according to the effects observed. He prescribes at the same time an aperient, consisting of extract of colocynth and extract of cinchona bark.

It may be observed that the germander had a reputation for relieving gout before colchicum was introduced. It was one of the ingredients of the celebrated Portland powder.—*Lancet, July* 5, 1862, *p.* 20.

112.—ON MENISPERMUM CANADENSE.

Yellow Parilla.—This plant, is indigenous to North America, growing abundantly in all the States from Canada to the Mississippi. The root is the part employed. It is tonic, laxative, diuretic, alterative—properties similar to those attributed to the *Menispermum fenestratum.* For the reasons stated in a former paper, it is probable that a readier and more certain supply of the American species can be obtained than of that from the island of Ceylon, and this may recommend this drug in preference for experiment in this country. Nearly allied as the two plants are, it by no means follows that their therapeutic actions are identical. Yellow parilla is alleged to be of great value in general debility, dyspepsia, scrofula, and many cutaneous diseases. We have not met with any analysis of this root, but its visible and therapeutic properties would seem to warrant the expectation that it contains berberine, associated with an aperient resinous or extractive matter. A concentrated preparation of parilla is in the market, and is said to represent fully its remedial value. It is designated *menispermin.* The dose of this substance is two grains repeated three times a day.—*Lancet, July* 5, 1862, *p.* 20.

113.—ON THE NITRO-PRUSSIDE OF SODIUM AS A TEST FOR CERTAIN ALKALOIDS.

By John Horsley, Esq., of Cheltenham, Analyst for the County of Gloucester.

Since announcing the above test, I find, by using it in the manner stated, that the plea for the non-detection of strychnia in the presence of morphia no longer holds good, as subsequent experiments with five, and even ten, times the amount of morphia prove.

I find, also, that one drop of a solution of strychnia of 1 per cent. strength, agitated with one or two drops of a solution of the nitro-prusside, produces an abundant crop of crystals for an infinitude of experiments with sulphuric acid, the crystals under the microscope being in long nitre-shaped tufts and needles. A similar experiment with brucia produces larger and broader needles, having lancet points totally different from strychnia, as well as in its reaction with sulphuric acid. A similar experiment with morphia also shows certain characteristics:—Thus the crystals are for the most part of a peculiar star-fish shape for the larger compound crystals, which appear to be made up of plates or layers of single squares. These crystals, when collected on a filter and dried, produce the usual orange-red coloured reaction with nitric acid, but, unlike pure morphia, when touched with sulphuric acid assume a deep sepia brown with a purplish shade, which is more or less persistent—totally different from the reaction on any other alkaloid. Possibly, by applying this test to some other alkaloids we may obtain some useful characteristics by which they can be recognised better than by some of our present methods.

As some may probably be desirous of information as to the best mode of extemporaneously preparing the test, I have much pleasure in furnishing it, and at the same time beg to observe that it is not necessary to carry the process so far as to separate the nitro-prusside from any adhering nitrate of potash and soda, which does not in the least interfere with its action, but, on the contrary, I think assists it. Thus: take three drachms of dry powdered yellow prussiate of potash; put it into an evaporating-dish, pour over it gradually a mixture of six and a-half drachms each of strong nitric acid and water; digest this over a water bath till all bubbles of gas cease to be evolved: then weigh out five and a-half drachms or so of carbonate of soda, and add it carefully by degrees till the acid liquor is neutralised. Boil for a few minutes till a greenish brown precipitate forms; then filter, dilute with an equal bulk of water, and preserve for use.

In testing for strychnia, the smallest portion only is required, so as to leave a faint yellow spot in the capsule when dry, and

very little crystalline matter. If no strychnia is present, there will be no reaction produced by sulphuric acid, and any little organic matter will not interfere with it as to effect decomposition like the bichromate of potash.

On Morphia.—In addition to the nitro-prusside test for morphia, described by me in the last number of Chemical News, and as above, I have now to notice another peculiarity of morphia—viz., the rapidity with which it reduces nitrate of silver.

If one drop of solution of acetate or sulphate of morphia (1 per cent. strength) be mixed with fifteen or twenty drops of a solution of nitrate of silver (4 grains per drachm), and agitated for a minute or so, a fine white crystalline precipitate of frosted silver shortly takes place, the liquor acquiring a slight yellow colour from the reaction of the liberated nitric acid upon the morphia, and on decantation or filtration and the addition of strong nitric acid the usual orange red colour of morphia is developed. If a white porcelain dish containing the nitrate of silver solution be slightly warmed first before adding the morphia, the reduction is almost instantaneous, and the vessel coated with a film of silver. I have not noticed a similar reaction with other alkaloids, so that this peculiarity entitles it to a place amongst the ordinary tests for morphia given in our toxicological works. I consider it quite as delicate and unexceptionable as iodic acid, which was generally considered the most sensitive test. Gallic and tannic acids need never lead to any confusion with morphia, as their reaction on silver solutions is very different; an intense muddy black or brownish black colour being produced immediately, and goes on to increase, whilst a flocculent precipitate forms, which is not the case with morphia, to say nothing of the other characteristics by which they are readily distinguished.—*Medical Times and Gazette, July* 12, 1862, *p.* 31.

114.—ON STRYCHNIA AND MORPHIA.

Mr. John Horsley, Analyst for the county of Gloucester, has lately drawn attention to an observation originally made by Dr. Letheby, and confirmed by Dr. Reese and Professor Thomas, of Philadelphia, that morphia has the power of disguising and destroying the coloured reactions by which strychnia is recognised. His investigations have led him to the discovery of a method by which the difficulty thus arising may be overcome, and also to a new test for strychnia. He writes:—"I have, however, satisfied myself of another very important fact, viz., that it need not create any alarm or uneasiness in the public mind, for the difficulty in question is more apparent than real;

since, in any case where both active principles are capable of extraction from a dead body, the strychnia is effectually separated from the morphia in a form admirably fitted for identification by adopting the following simple method which I had the honour of submitting to the British Association for 1856, viz., to convert the strychnia into a chromic salt by the addition to the pure and concentrated liquid of a few grains of the neutral chromate of potash and briskly agitating the mixture with a glass stirrer for a minute or so, when, if strychnia be present, a more or less flocculent but crystalline precipitate of a golden colour will separate and collect at the bottom of the vessel. In the course of a few minutes the supernatant liquor containing the morphia (which is much longer in precipitating) must be carefully decanted. If now a drop or two of the residue containing the golden coloured strychnian salt be taken up with a pipette and projected into a small white porcelain dish, and touched with strong sulphuric acid, the usual purple and violet-coloured indications of strychnia will be most marked. In this way a very small quantity of the poison will suffice for numerous chemical experiments, as demonstrated by me before the Chemical Section of the British Association. A similar precipitate of morphia does not react in this way, but is turned of a green colour; hence, when morphia is in excess, it has the power of masking the coloured reaction of strychnia, which, though present, remains passive and unelicited; but, by the process described, the strychnia can be easily separated from the morphia, or any other active vegetable poison with which it may be associated, when once these have been extracted from a dead body in a sufficiently palpable form. Thus much for the method of separating strychnia when present with morphia; but beautiful and delicate as is this method of detection, yet it is very far inferior to a new reagent I have just discovered, viz., the nitroprusside of sodium, which enables me to detect the 100,000th of a grain with the greatest ease! These may be considered large figures, but are arrived at thus: One grain of strychnia is first dissolved in 100 grains of water; then one drop of this solution is mixed with 999 more of water, and a fragment of the nitroprusside of soda added. When dissolved and well mixed by agitation, a single drop of this solution, equal to the 100,000th of the original grain of strychnia, is let fall into a small white ware dish, and, after evaporation to dryness over a steam bath, is fit for the development of the characteristic colour by merely drawing a glass rod dipped in sulphuric acid across the spot. The 3000th part only, with the best experiment, being the limit of the ordinary process, the new test, therefore, exceeds the old by 97,000 times the intensity; in other words, it is about 30 times more delicate.—*Med. Times and Gazette, June* 28, 1862, *p.* 682.

115.—ON THE SUBCUTANEOUS INJECTION OF QUININE.

By Dr. James M'Craith, Surgeon to the British Seamen's Hospital, Smyrna.

[Dr. M'Craith is surgeon to the operatives engaged on a railroad at present in course of construction, near Smyrna. This passes through some places as rife in malaria as the Pontine Marshes themselves. They have often forty to sixty cases in hospital from intermittent fever at a time.]

Seeing the immense expense of sulph. quinine, the frequent difficulty and occasional danger of the large doses necessary in this climate, Dr. Chasseaud cast about, as many others have done before, to find some means of obviating those difficulties. He began a series of subcutaneous injections, and was most grateful to find his success complete. The effect of one or two grains of quinine in solution, injected into the cellular tissue of the arm, being equally efficient in arresting fever, if not more efficient than the scruple doses hitherto found necessary. This method is also free from the inconvenience of the large dose taken by the mouth—vomiting, diarrhœa, and gastric symptoms often rendering the exhibition of large doses by the stomach ineffectual, difficult, and hazardous.

Now, a substitute for quinine has been sought for ineffectually ever since the discovery of this most valuable and now necessary or indispensable specific. Now, if Dr. Chasseaud's application of it prove satisfactory, (and from what I have seen it cannot fail to do so), such application is tantamount to finding a substitute. He makes two grains equally or more effectual than twenty grains, the which twenty grains had often to be repeated. The importance of this I need not insist upon. His method is the following, it can be put into practice by any one, the merest tyro in medicine:—He makes a saturated solution of quinine in alcohol, (he has tried with success the solution of the sulphate, also the citrate, and bisulph. in distilled water, but prefers the alcoholic solution of quina), and of this solution he injects as much as is equivalent to two grains under the skin of the arm, avoiding the large veins. He makes a puncture with a spear-shaped lancet, pinching up for that purpose the skin over the triceps on the arm, and with a syringe injects under the skin the solution as described above. Any syringe with a small pointed nozzle will answer the purpose.

He applies a small compress and light bandage to prevent the escape of the injected fluid. Now fifty cases, many of severe form, have been treated in this manner, and with more satisfactory results than by the old and recognised method. Dr. Chasseaud is preparing a detailed report of these cases, many of

very severe form, which he will not delay to lay before the profession. One curious effect I may mention, and which would not be anticipated, is that generally after the injection the patients fall into a quite sleep of some hours.

Now, if this application of quinine prove of that importance which I believe it to possess, Dr. Chasseaud will have a right to a reward from all the civilised governments of the world, seeing the immense economy of quinine it will effect in all hospitals, civil and military, all over the world. To the poor of malaria countries his discovery will be a boon beyond all price. —*Medical Times and Gazette, Aug.* 2, 1862, *p.* 120.

116.—ON SUSPENDED ANIMATION.

[The following are the suggestions offered for the treatment of apnœa generally, by the Committee appointed by the Royal Medical and Chirurgical Society for the investigation of this subject.]

That all obstruction to the passage of air to and from the lungs be at once, so far as is practicable, removed;—that the mouth and nostrils, for example, be cleansed from all foreign matters or adhering mucus.

That in the absence of natural respiration, artificial respiration by Dr. Silvester's plan be forthwith employed in the following manner:—The body being laid on its back (either on a flat surface, or, better, on a plane inclined a little from the feet upwards), a firm cushion or some similar support should be placed under the shoulders, the head being kept on a line with the trunk. The tongue should be drawn forward so as to project a little from the side of the mouth. Then the arms should be drawn upwards until they nearly meet above the head (the operator grasping them just above the elbows), and then at once lowered and replaced at the side. This should be immediately followed by moderate pressure with both hands upon the lower part of the sternum. This process is to be repeated twelve or fourteen times in the minute.

That if no natural respiratory efforts supervene, a dash of hot water (120° Fahr.) or cold water be employed, for the purpose of exciting respiratory efforts.

That the temperature of the body be maintained by friction, warm blankets, the warm bath, &c.

In the case of drowning, in addition to the foregoing suggestions, the following plan may be in the first instance practised:—Place the body with the face downwards, and hanging a little over the edge of a table, shutter, or board, raised to an angle of about thirty degrees, so that the head may be lower than the

feet. Open the mouth and draw the tongue forward. Keep the body in this posture for a few seconds, or a little longer if fluid escapes. The escape of fluid may be assisted by pressing once or twice upon the back.

Dr. C. J. B. Williams said, that if the subject of suspended animation and its treatment appeared to be one of great importance when the committee were appointed for its investigation, the result of their labours did not make it less so; for during their researches several new points of both physiological and practical interest had arrested their attention. The report just read contained a large mass of facts bearing on the subject, and these facts would be fully appreciated when they should be maturely considered; but the members of the committee thought it might be acceptable to the society if one of their body were to give a short summary of some of the most striking results. He (Dr. Williams) had been requested to do this since he entered the room, and not having been previously aware of the office which would devolve on him, he was not prepared to go fully into details; but he believed that he was sufficiently acquainted with the general results of the experiments to be enabled to give a summary of their most important features. He would premise that he could take no merit to himself with regard to the experiments which had been so ingeniously devised and laboriously carried on by the other members of the committee. He had been present at very few of the experiments themselves; but, as chairman of the committee, had merely assisted in receiving and completing the reports from the sub-committees. The committee, having to consider the subject of "Suspended Animation," directed their inquiries to that kind of interference with life which results from stoppage of the breath in suffocation, strangulation, and drowning. The first series of experiments was to investigate the result of simple apnœa, or stoppage of the breath; and for this purpose the trachea of animals was opened, and a tube inserted so as to command the supply of air; and this tube being furnished with a stop-cock could be closed, and the results noted, especially these:—After the closure of the tube, 1, how long respiratory efforts continue; 2, how long the heart's action continues; 3, how long the heart beats after the breathing efforts cease. The experiments show a considerable variety of results; but, as a general average, it may be stated that in dogs efforts at breathing continued a few seconds more than four minutes after the closure of the tube; and the heart's action three minutes and a quarter longer. The duration and force of these respiratory efforts, in an animal deprived of air, were not more remarkable than important as indicating the period within which an animal deprived of air, could recover; and this was found to be almost, but not quite,

as long as the duration of these efforts—that is to say, a dog deprived of air four minutes only, would recover; but if the exclusion of air lasted ten seconds longer, he did not recover. The extraordinary force of these struggles for breath was shown by plunging the end of the tube into mercury; when it was found that the inspiratory effort sometimes raised a column of four inches of mercury, and, if the tube was shorter, would draw the quicksilver in considerable quantities into the bronchial tubes and air-cells of the lungs. The next subject of investigation was suspended animation from drowning; and here the experimenters soon found a remarkable difference in the greater rapidity of the death, and the shorter time during which life is recoverable. An animal simply deprived of air for four minutes may recover; but one immersed in water for one minute and a half is irrecoverably dead. Recovery took place in several cases where the immersion lasted one minute and fifteen seconds; but fifteen seconds more made all the difference. The experimenters proceeded to search into the cause of this peculiarly destructive operation of drowning, as compared with simple privation of air; and very soon they were enabled to trace it to the action of the water itself, forcibly drawn into the lungs by the respiratory struggles of the animal. Two dogs were plunged into water, one having its trachea closed by a stop-cock at the moment of immersion. The dog with the trachea free was taken out in two minutes, irrecoverably dead. The other, with the trachea closed, was taken out at the end of four minutes; the trachea was opened, and in the course of a few seconds the animal began to gasp, and soon recovered. Another mode of diminishing the inspiratory struggles of the animal was by stupefying it with chloroform before immersion in water, and it was actually found that recovery took place after two minutes and fifteen seconds' immersion. On this point he (Dr. Williams) adverted to a popular opinion, that it is more difficult to drown a drunken man than one who is sober, as having some foundation on this fact, that insensibility of any kind retards the fatal influence of drowning by diminishing those violent struggles for breath which, by forcing water into the lungs, soon put the case beyond recovery. But nothing so fully pointed out the extent and nature of the fatal influence of water in the lungs as the appearance of these organs in drowned animals as compared with those killed by simple apnœa. In the latter the air passages remained free from all secretion or effusion, and the lungs themselves were light and buoyant, and contained remarkably little blood. Now this is contrary to what is generally described as the state of the lungs in asphyxia; and probably in ordinary cases, where death is not sudden, but prolonged, more or less engorgement may take place. But here there was no engorge-

ment or obstruction, and it was not wonderful that animals would recover more readily. But with drowned animals not only were all the air-passages choked with frothy fluid, and that fluid generally more or less bloody, but the whole lungs were always highly engorged with blood, so that they were heavy, dark-coloured, pitted on pressure, and on being cut, exuded an abundance of blood-tinged fluid with many air-bubbles in it. On this subject he would make two remarks on his own responsibility, apart from his office in the committee. One was, How opposed these observations and conclusions are to those many years ago propounded by Goodwyn in his treatise on Suspended Animation, whose opinions have generally been adopted to the present time. Goodwyn concluded from his observations, that water never to a hurtful extent enters the lungs of the drowned, and he deprecated the popular practice of hanging up a drowned person by the heels to let the water run out. He (Dr. Williams) was by no means sure that, as Dr. Goodwyn was certainly wrong in his pathology, some modification of the popular practice may not be beneficial. The other remark related to the mode in which the water which got into the lungs of the drowned proved so rapidly and extensively injurious. No doubt much was due to its mechanical pressure on the tubes and cells, forming an impervious barrier to the readmission of air; but this would not account for the extraordinary increase of blood in the lung, and its transudation into the air-tubes. He believed the injurious influence of water to be due to its chemical power of acting by endosmosis on the blood within the capillaries of the lungs, swelling up and bursting the blood-corpuscles, and causing their rapid accumulation in the organ, and their extravasation into the bronchial tubes. This was a subject for further experimental investigation, and he thought it one of great importance, as bearing on the action of water as a noxious or a therapeutic agent. He would not detail the various means of resuscitation which were tried by the committee, but the results of the trials were not such as to induce the committee to recommend them strongly for general adoption. Various instructive experiments were made on different modes of performing artificial respiration, and the most conclusive of these had reference to the so-called "ready methods" of Dr. Marshall Hall and Dr. Silvester. One of their committee (Dr. Sanderson) contrived the apparatus on the table for measuring the air which could be forced out of it into the lungs of a dead body by these methods of artificial respiration; and the general result was, that by Dr. Hall's method the quantity of air moved in and out of the lungs rarely reached nine cubic inches, and never exceeded fifteen; whereas by Dr. Silvester's plan an interchange of forty cubic inches was effected; and

when this method was further improved by alternating the drawing up of the arms, with depressing them, and with pressure on the lower part of the sternum, the expelled air was as much as fifty cubic inches. So far, then, as these experiments go, they show a great superiority of Dr. Silvester's over Dr. Marshall Hall's "ready method."—*Lancet, July* 12, 1862, *p.* 38.

117.—ON GALVANISM AS A THERAPEUTIC AGENT.

By Harry Lobb, Esq.

[The late Dr. Golding Bird stated his belief that it was to galvanism that the profession must look for some of its future triumphs. This opinion has been fully endorsed by a large number of observers, and, among the rest, by Sir Charles Locock. Mr. Lobb says:]

The following cases I have selected from the practice of a public institution, established recently in London, for the purpose of testing, in a larger field than can be obtained in private, the real value of galvanism in the treatment of disease; and I shall endeavour to explain the practical working of the apparatus in each case, as by this means those who are ignorant of the subject can more readily carry out the treatment should they desire to test its value; and I may at once state that the observations made by Dr. Golding Bird in the electrical ward he established in Guy's Hospital under his own special supervision, since followed out by Dr. Gull, namely, that rheumatic paralysis yielded most readily and in a remarkable manner to the electrical stimulus, has been most fully borne out in my own practice.

To commence, then, with a case of muscular rheumatic paralysis, limited to the fore-arm, and recently induced.

No. 61.—George Jones, aged sixty-three, surgeon, 14, Polygon-street, St. Pancras, rheumatic paralysis of the left lower arm, with fixed claw-like contraction of the fingers, of 10 day's duration, brought on by exposure to cold and wet; the skin of the arm was peculiarly dry and scaly, and the muscles, both flexors and extensors, hard and contracted.

In rheumatic paralysis the custom is always first to excite the skin with a sharp current, using a dry flat metallic conductor; the positive pole of 120 element galvanic battery is applied, by means of a wet sponge, upon the skin at the bend of the arm, and the operator, taking the flat metallic conductor, attached to the negative pole of the battery, in his hand, applies it sharply over the skin of the arm, front and back, for five minutes, producing redness of the surface, with sharp stinging pain;

upon retaining the conductor upon the belly of a muscle, for a few seconds, trembling and twitching in the muscle shortly commences; this shows that the paralysis will rapidly yield; this was done over all the principal muscles for a few seconds each; the conductor was then changed to a moist one, and each muscle was stimulated to contraction. The whole operation took 12 minutes, at the end of which time the patient could open and close the hand freely, without any pain. On attending two days afterwards, he had had no relapse, and was discharged cured.

No. 58.—Henry Hall, aged forty-five, Duke-street, Portland-place, two months previously had been laid up with rheumatic fever, leaving behind rheumatic paralysis of the deltoid, and muscles of the shoulder of the left arm; for this he was recommended by Mr. Kelly, surgeon, of Fetter-lane, to attend the hospital. The treatment was the same as in the last case; and after two operations of a quarter of an hour each, he was discharged cured.

No. 38.—William Pratt, aged fifty-four, bookbinder, 5, Buckingham-street, Pimlico, rheumatic paralysis of the right leg; great stiffness in walking, so that the leg dragged, the foot being fixed. Two winters ago he had stood constantly in a draught of cold air at work, and this had gradually induced paralysis of the limb with coldness and numbness; he had been in this state for 20 months; he had been treated by Dr. Griffiths, of the Belgrave-road, who had succeeded, in a great measure, in removing the numbness, but not the paralysis, he therefore recommended Pratt to attend the hospital. The treatment was the same as in the former cases. After the first operation the foot felt warm and comfortable, and loosened; and after six operations the paralysis was quite cured.

These three cases will be sufficient to prove the immense power galvanism, where scientifically applied, has in curing rheumatic paralysis. As far as my experience goes, I have never yet met with a case which has not completely and rapidly yielded to galvanism; the current restores the circulation in the part, causing warmth and redness where previously there had been pallor and cold; the muscles, also, which were stiff and hard after contraction, become soft and elastic to the touch. I could relate many more cases, some of long standing; but, as the treatment is the same in all, it is useless to multiply examples, especially as I am desirous only to refer to those treated at a public institution. The following cases are uncommon, but from their extreme interest are well worthy of mention. They contrast with the previous ones in the time required to effect a cure.

No. 20.—Catherine Lee, aged two years, 6, Great Crown-street, St. James', four months previously, whilst teething, lost, during the night, the entire use of the right upper arm, followed by

gradual and complete wasting of the deltoid, biceps, and triceps; the arm hung by the side powerless; there was no wasting of the muscles of the lower arm, and their movements were but little less active than those of the left arm; the head of the humerus, by the loss of the tonicity of the deltoid, had fallen away from the scapula, leaving an indentation in which the finger might be laid; the tissues around the humerus had so wasted that there was little besides the skin to cover it. Upon applying the interrupted current of galvanism there was not the faintest contraction, there being no muscle to contract. This was a serious state of things, but having had cases previously that had done well, I did not despair. The treatment consisted in the application of a galvanic chain from the spine, winding round the atrophied muscles to the bend of the arm; the positive pole upon the spine, the negative on the arm; this increases the circulation in the part, and tends to stimulate nutrition. Thrice weekly the child (a remarkably healthy well-grown one) attended to have an interrupted galvanic current applied to the arm to stimulate to contraction any muscular fibres there might be remaining, to increase nutrition, and to take advantage of any fibres generated by the chain. Some weeks elapsed before any change was observed, when it was considered that the head of the humerus was not quite so far from the socket, and that the arm was filling out; there was, however, no muscular contraction. At the end of two months there were some faint contractions in the triceps, and the arm was much fuller and firmer; the improvement was slow, but steady; and at the present time, nine months after the first operation, complete muscular contractility, under the galvanic stimulus, has been recovered in all the muscles; voluntary power in the triceps and biceps has returned, but as yet there is no voluntary power of contraction in the deltoid.

I have little doubt but that the child will entirely recover the use of the arm; the probable time is from two to three months; if so, the case may well be considered a triumph to the science of medicine, or rather medical galvanism.

No. 32.—Master Richard Bennett, aged six years and a-half, 8, Gloucester-cresent, Regent's-park, suffered, some three years ago, from low fever, followed by partial atrophy and paralysis of the left leg. From the knee to the heel the leg is nearly an inch shorter than the right, the gastrocnemius has entirely disappeared, and under galvanism there is not the least contraction in it. There is a great hollow above the heel and flaccidity of the tendo-Achillis; the foot is mis-shaped aud atrophied; the muscles in front of the leg have shrunk, and do not actively contract under galvanism—probably from want of use, as he has worn an orthopedic instrument which has enabled

him to walk, but has, at the same time, weakened those muscles which were healthy, so that he walks entirely from the upper leg; the thigh is smaller than the opposite one, but is not atrophied. This case somewhat resembles the last, although the atrophy does not affect so many muscles, and there is, consequently, less paralysis. The walk is clumsy, and he has not the slightest power of rising on the toes; still he can walk after a fashion.

Treatment.—A galvanic chain from the spine to the foot, to increase circulation; the debilitated muscles stimulated, by the interrupted galvanic current, to contraction, so as to give them tone, that the orthopedic apparatus may be discontinued; this was done, and the machine was dispensed with after a month's treatment. He could, at the end of that time, walk much better, the debilitated muscles were much stronger, the foot more shapely, the thigh fuller and firmer, and he was altogether much improved. Now was the time to commence with the gastrocnemius, and I find that when the atrophy is extreme, the continuous galvanic current is the most useful, with a wet positive pole; and, if the patient can bear it, a dry negative metal conductor over the atrophied muscles, if not, a wet one. After several applications, a trembling was observed beneath the skin: this was the first faint contraction of the returning muscular fibres. This gradually increased in force until the tendon was affected by it, and the heel drawn up. This, however, took time, and at the present moment, five months after the commencement of the treatment, much remains to be done. I have no doubt, however, of eventual and complete recovery. The case, except under treatment by galvanism, would terminate in confirmed atrophy and paralysis; the leg, from the knee downwards, would cease to increase in the same ratio as the other, and, upon his arriving at man's estate, the left leg would be probably three or four inches shorter than the right. These cases of paralysis and atrophy, occurring during teething, and as a sequela of fever, although rare, are far more common than are generally supposed. Since having turned my attention to the treatment of paralysis, I have met with a large number, and, although taking a considerable time to cure, still my experience leads me to affirm, that they are decidedly curable, and that, if the patient will only give the time and attention, galvanism will do all that is necessary.

The next group are the neuralgiæ, generally yielding very rapidly to the continuous galvanic current. Of these there have been many examples, but I shall pass them all over with one exception, as it is remarkably instructive:—

No. 10.—Ann Wilson, aged fifty, 11, Caledonia Terrace, King's Cross, has suffered with pain along the course of the

sciatic nerve, for the last twelve months, sometimes bad enough to cause great difficulty in walking. The pain is chiefly in the hip and about the foot, and is sometimes very acute; she is never entirely free from it; otherwise she is quite well. I recommended her to wear a galvanic chain (direct current), and to have the skin over the painful parts stimulated with the dry conductor (direct current). This gave but very slight and evanescent relief, but was persisted with for some weeks. I then thought of trying the inverse current, seldom though occasionally, beneficial in neuralgia; the poles of the chain were changed, also the battery current. This gave immediate relief, and after five applications she was quite cured, and has had no return since, now more than two months. I have noticed now in many cases, that in all uterine affections, where that organ or any of its appendages are primarily affected, that the inverse current is the one required and not the direct, which is seldom of any advantage. I therefore conclude that this case of sciatica was the result of some uterine affection, as the arrest of the menses, or ovarian congestion. I have already recorded, in the Lancet, a case of most severe neuralgia of the face, cured by the continuous galvanic current, inducing the menstrual flux, which had ceased for some time.

And now we must enter upon the more severe forms of paralysis, of which we have had some very bad cases—many that have been under every form of treatment; in fact the majority of cases attend the Hospital as a last resource, and the more easily curable affections do not come at all, so that the patients are a long time under treatment.

No. 42.—James Mallison, aged fifty-three, 7, James-street, Blackfriars Road, is a blacksmith, has been gradually losing the use of his hands, and upon application had entirely done so. The hands are dropped, with complete paralysis of the extensors, which are completely atrophied on the right side, and almost completely on the left. There is not the faintest contraction under the highest power of the galvanic current; the hands and arms are thin, and of a purple colour. There can be little doubt that the paralysis is the result of poisoning by lead, as he had previously suffered from colic. There is, however, no history of any introduction of lead into the system. The gums are in a very bad state, also the teeth; complexion blue and pallid.

Treatment.—To wear a galvanic chain round the arms, from the elbow to the wrist (direct current). Three times a week to have a powerful continuous current passed through the arms, a dry metallic conductor attached to the negative pole, passing over the skin covering the atrophied muscles. By degrees faint contractions might be discovered under the skin, more particu-

larly in the left arm, and the arms began to increase in size. At the present time, three months after commencing the treatment, he has quite recovered the use of his hands, and has returned to his work.

Of the number of cases applying for relief at the hospital, there have been very few refused as being unadapted for treatment by galvanism, but there have been many that have yielded but slowly; of these, I select the following as being the one that has taken the most time with the least result:—

No. 12.—Henry Stanard, aged forty-eight, Sherborne-street, Islington, hemiplegia, three years' duration. The paralysis came on gradually, with a series of fits, not of a very severe nature, and only partial loss of consciousness; his memory is a good deal affected, and his speech is a little thick; he has what he calls his attacks, even now occasionally; he describes them as a giddy feeling, lasting but a short time, but incapacitating him from any motion or use of the will during the time. I have never seen him in one. On applying to the hospital last July, there was stiffness in the leg, with some ability of walking. The arm, the right, was, however, entirely powerless, with contraction of the pectorales, biceps, and flexors of the hand, so that the arm could not be straightened, or the hand opened, even by using great force; he had no power in it at all. The treatment commenced with the use of the direct continuous current to the paralyzed muscles. At that time I was not practically aware of the power of the inverse current to remove the contraction of muscles, the result of disease within the brain; the treatment with the direct continuous current was persevered in for six months, with benefit, sufficient to satisfy the patient he was deriving advantage—but not of a very marked nature. During this time I had discovered the virtue of the inverse current in overcoming muscular contractions—consequently in February I applied the inverse continuous current to Stanard—by placing the wet conductor, attached to the possitive pole, upon the bellies of the contracted muscles, the wet conductor of the negative pole over the left temple, and in twenty minutes the arm became perfectly flaccid, the previously contracted muscles quite soft, the hand could now be opened without any resistance; he had, as yet, no voluntary power in the arm to extend it, or open the hand. On each visit there was less contraction, and now, after being galvanized, he can stretch out the arm fully, and can open the hand. I look upon the use of the inverse continuous galvanic current as giving to therapeutics a vast power hitherto unthought of, and likely to be almost as useful as the direct continuous galvanic current, the one now more generally applied. To the physiologist these facts cannot but be of the greatest interest. I believe that the wonderful difference in the effect of the direct

and inverse galvanic current has not at all been recognised by authors, and as it is of the greatest interest to the physiologist as well as the physician, I should be only too glad if these remarks should excite in some inquiring mind a desire to become better acquainted with it; should this be the case I shall be most glad to demonstrate to any inquirer, who may wish it, the experiments I have instituted for the purpose.

Now is the right time for investigators to enter upon the study of galvanism as a therapeutic agent, as most of the real difficulties that had impeded the path of progress have been swept away by the unremitting labours of those who have gone before. The apparatus is now compact, portable, cleanly, easily excited and applied. Electro-physiology has been ardently studied by Matteucci, Dubios Reymond, and Radcliffe. Electro-therapeutics, by Remak, Becquerel, Duchenne, and numerous others, so that the field, although not entirely fallow, is by no means occupied, and is ready to yield a rich harvest to the ardent and faithful student.—*Dublin Quarterly Journal, August* 1862, *p.* 76.

118.—ON THE GALVANIC CAUTERY.

By Dr. Julius Althaus, London.

Wires rendered incandescent by the continuous galvanic current can be employed for producing the effects of the actual cautery, whether we intend destroying the tissues or merely modifying their vitality. In certain cases the *galvanic cautery* has great advantages over other cauteries and the knife. It acts rapidly and energetically—it causes little or no hemorrhage —there is no danger of its hurting the adjacent structures, neither on first introducing nor in afterwards removing it—it favours the growth of healthy granulations, and is not so terrible to the patient as the red-hot iron; and deeply-seated tissues which are inaccessible to the knife may, by the galvanic cautery, be burnt or cut without danger. After its use the condition of the patient is almost always satisfactory, besides which the proceeding is scarcely painful. The drawback to the galvanic cautery is, that a special and somewhat expensive apparatus is required for its use, and that the wires when rendered incandescent, may melt, especially if they come in contact with bones or cartilages. The galvanic cautery is chiefly applicable in the following conditions:—Hemorrhage from a large surface (as from fungus medullaris), certain forms of neuralgia, ulcer of the collum uteri, cancer, fistula, severe stricture of the urethra, and polypus of the uterus, the larynx, and posterior nares. Professor Middeldorpff's galvanic burner, porte-ligature, and

seton, are the most convenient intruments for cauterization by means of galvanism.—*Med. Times and Gazette, Sept.* 13, 1862, *p.* 272.

119.—ON THE AIR OF HOSPITALS.

By M. Chalvet.

M. Chalvet, in his interesting researches into the causes of hospital insalubrity, has shown that the analysis of the air in the wards of St. Louis furnished him with a large quantity of starch-corpuscles; and that a large quantity of putrescible organic matter was collected in the bed-curtains, and on the walls, windows, &c. He also showed that the linen, as returned from the laundry, was still tainted with organic detritus, linseed, and spots of various kinds. May not linen thus stained with altered pus and blood be the vehicle of the contagion? We know that vaccine matter may be preserved on cotton or linen threads.

M. Chalvet has also shown that the vapour of water condensed in the neighbourhood of a suppurating focus is strongly charged with irregular corpuscles, resembling dried pus. Eiselt of Prague also asserts that he has seen small cells like those of pus spread through the air of a ward in which an epidemic of purulent ophthalmia was raging. On this point M. Chalvet says:

"The atmosphere of a hospital is no longer a vague expression. The air of it differs essentially from pure air. In 1860 I witnessed the experiments of M. Réveil, and recognised in the most positive manner the presence of organic corpuscles in the apparatus constructed by that skilful chemist. We then observed chiefly cells and the *débris* of epithelial cells; corpuscles of divers forms, which became yellow under the action of nitric acid; and bits of charpie charged with these corpuscles. Under like conditions he saw, with M. Kallmann, in the laboratory of M. Réveil, organic *débris* incrusted with a granular substance, which gave the reaction of copper. The dust thus observed was collected in an ophthalmic hospital, where sulphate of copper was largely used as a caustic.

"Dust, collected by dusting the walls of the ward St. Augustine at St. Louis, furnished me with 36 per cent. of organic matter. At another perid, in the laboratory of M. Réveil, dust collected from the same quarter yielded 46 per cent. of organic matters, which consisted in large part of epithelial cells, and yielded a horny smell when calcined.

"When wetted, the dusty powder quickly gives off a very fœtid smell. Doubtless, the thick layer of dust covering the walls of our old hospitals may produce gases capable of favour-

ing the transport through the air of corpuscles, which perhaps play a very important part in the air of hospitals."

May not, asks M. Trousseau, considerations of this kind furnish us with useful information regarding the etiology of diseases? There may, perchance, exist in the air at a given moment morbid germs, which will some day enable us to seize upon the cause of endemic and epidemic diseases.

"These germs will not be developed as readily in all patients, because the conditions of their reception vary infinitely. Some patients, like certain earths, will not receive certain germs. The wind may spread the same seed widely over a country, and yet the grain will not spring up everywhere alike. Here the soil may be too wet; there too dry; here other germs have grown up, and stifled the new seed. Just so is it with morbid germs and ferments. They, individually, require conditions favourable to their development."—*British Medical Journal, July* 12, 1862, *p.* 39.

120.—ON "A MAN'S CONSTITUTION."

By Dr. P. M. Latham.

Nothing so vitiates the practice of medicine as that over-refinement which either pretends to see more than can be seen, or fritters away what it *does* see into endless idle particularities.

But it is not to over-refine, in either sense, when we patiently study the constitution and individuality of men respective to the treatment of their diseases. The practical end in view is ever admonishing us to make sure of what we see, be it obvious or occult, near or remote; and, instead of multiplying the particulars which we find, to reduce them to as few as possible, that so they may be more easily grasped, and handled, and turned to use.

A man's physical individuality, when it is written and displayed in any of its larger and broader characters, warns and prophecies of things which threaten and beleaguer his mortal state as long as he remains in the world. It tells of one man, that his health in its uses and duties and enjoyments, his real health, will always be tied to conditions of place, of regimen, and employment. It tells of another, that there are certain forms of disease to which he will always be obnoxious. In another, whatever be the disease he suffers, it points to the likelihood of certain intercurrent accidents and events. And thus does this individuality, which is written in larger characters, and is seen and read of all men, call for and deserve the special attention of the physician.

But a man's physical individuality may be written in a much

smaller character, or in a character legible only by the physician, and not always by him, but only as circumstances chance to bring it out, and put it in points of view that make it visible. Yet this smaller thing, seen but by the physician, and by him occasionally and seldom, being, however, an undoubted reality, may become a vast event in its practical bearing and use. As thus, let a man be overtaken in the midst of health by some acute disease, by typhoid fever, or pneumonia, or enteritis, or erysipelas; or let him suffer an extensive burn, or meet with some grave accident, lacerating and contusing soft parts deeply and widely; and after the lapse of weeks, made up of days and nights full of emergencies, met and managed according to their kind, and by remedies of definite aim and purpose, let the man be restored to perfect health. This single attack will serve the physician, who watched and treated it, with information, which will ever afterwards be his guide to the safe and successful treatment of every attack of whatever disease the same individual may suffer as long as he lives.

But how so? Even thus. In the individual case, the physician has not been studying a typhoid fever, nor a pneumonia, an enteritis, an erysipelas, a burn, a laceration, or a contusion. He knew well enough before what they were in their own nature, and this case has not added one jot or tittle to his knowledge of them. And he never expected that it would. Practically, he has been turning away from the disease, and fixing his attention almost or altogether upon the patient who suffers it. He has been studying an individual constitution; and studying it under the surest test and trial that can be conceived of all its living powers. And what has the physician found? In one case, he has found the disease lightly and patiently borne; not so much suffered as complied with; and carried duly and seasonably through all its stages to its termination in health; and, whatever remedies were needed in the meanwhile, he has found them, too, as well borne as the disease, and answering their intended purposes, and helping the progress, and insuring the fortunate termination of the whole. In another case, he has found the disease impatiently borne and violently resented; the vascular system and the nervous system reacting with steady energy and power; and strong counteractive remedies, such as bloodletting, needed and successful in rescuing from death and procuring recovery—not without hazard. In another case, he has found the disease impatiently borne; and the vascular system and the nervous system making a show of reaction fitfully and capriciously, but mainly without power; and remedies as ill-borne as the disease; and the treatment of each day waiting upon each day's events; and depletion and support, stimulant and sedative, given interchangeably, yet suit-

ably to their indications, and manifestly instrumental to the saving of life.

Thus, day and night, for two, or three, or four weeks together, have experiments, as if instituted for the very purpose, been going on to bring out of the several men what they are vitally made of. And the sum of what is noted in them under this sure test of acute diseases and their remedies, may be taken as the sum of each man's constitution, of his physical and vital individuality.

Now, whoever may be the physician that has seen me safely and well through an attack of typhoid fever, pneumonia, enteritis, or erysipelas, or an extensive burn, or some grave accident, let me have the same to attend me ever afterwards in any severe disease which I may suffer. He may not absolutely be the best physician in the world; but he is the best for me; for he knows my constitution. But the discerning public delights in nothing more than a change of physicians for the novelty of the thing. And for this, as for other novelties, it is apt to pay dear.

Well! but is it quite true, that either written in larger characters, and under all conditions of health or disease, and so seen and read of all men; or written in smaller characters, and brought out only by the emergencies of disease, and so seen and read only by the physician; is it quite true that this physical individuality is always ready to show itself and to play its part in modes of acting and suffering, and always to distinguish man from man? Not always! There are diseases which level all individualities. The plague, the cholera, yellow fever, make all men alike. Temperament, idiosyncracy, susceptibility, diathesis, sanguineous, lymphatic, bilious, nervous, gouty, scrofulous, even strength and weakness, youth and age and sex, go all for nothing. The disease is as a poison, making no difference between life and life, but destroying all life, or bringing all into equal jeopardy.

Again, there are diseases which have a way of levelling and reducing to nothing the constitutional differences between man and man, otherwise than after the exact similitude of poisons. Poisons are poisons always and everywhere; while diseases may not have it for their constant power and property to level, and destroy, and jeopardise, widely and promiscuously, but they may have the power and property for times and places. It may be for a short or for a long season, over small or wide extent, perhaps for a year or part of a year, and over a certain district only; or, perhaps, for many years in succession, over a whole country, or over a continent, or over half the entire world. All febrile diseases which are contagious or epidemic have exemplified these truths in their turn. A single one is enough for our present purpose.

Of scarlet fever, consulting my experience of what it was during the few first years of my professional practice, and taking this for my guide, I must have pronounced that its danger to life was as small as it is possible to conceive, and that all the difference between case and case was manifestly due to the difference of constitution in several men. But of scarlet fever, viewed by the light of a new experience, my experience of what it was during a series of immediately subsequent years, I must have pronounced it the most perilous of diseases, and, that no matter whom it might befall, it levelled all to a parity of suffering and an equal hazard of death.

The sum of our experience carefully reckoned is consistent enough, upon the whole, to allow of our making fair anticipation of the course of diseases, and of the effects of remedies in particular cases. Without this there could hardly be a rational practice of medicine at all. Certainly there could be no agreement among medical men as to what is expedient to be done in any case.

Still of the simplest diseases and their course, and of the simplest remedies and their effects, our experience is not uniform enough to make us always sure of events, and excuse us from attentively watching all cases, if perhaps something new or unusual may occur in some, requiring changes of remedies and readjustments of treatment according to men's constitutions.

And thus, to comply with men's constitutions gives exactness and success to the treatment of their diseases, while it does no prejudice to any sound practical principles, but rather confirms them by showing their capability of yielding and adaptation to present necessity.

Considering how much individual constitution has to do with the treatment of diseases, a good deal more might, and ought to be said of it, if it could only be said intelligibly. But it is difficult to deal with truths which are most important to know, and yet cannot be submitted to scientific tests. The truths of medical practice are many of them such, and in this predicament. There are some of the most important realities in the world, which, in all their fulness, can only be pictured to the mind by the help of analogies and similitudes. Then, "with what comparison shall we compare" men's constitutions?

As there is an atmosphere without the man by which and in which who ever lives *does* live; so there is, what may be called, by a just analogy, an atmosphere within the man by which and in which whoever lives *does* live. The external atmosphere is the air we breathe; and somewhere in the world, perhaps, it has and always preserves its purest possible conditions, calculated to maintain existence at its best and its healthiest. But, thoughout the known world, heat and cold, dry and moist,

dense and rare, fair and foul, are variously distributed, and calculated, according to their measures, to subject life to degrees of deterioration, and to induce, and prolong, and perpetuate forms of disease. The internal atmosphere (so called from analogy) exists diffusively within us, and feeds our life. And as the external atmosphere may have perfect purity in some places, but one cannot say where, so this internal atmosphere may have perfect purity in some men, but one cannot tell whom. Being, however, at its purest and its best, it maintains (we may suppose) in each and every part the power and capacity of acting and feeling according to the perfection of their nature. But it is variously qualified in different men; and his vitality so qualified is each man's constitution.

Now, there are nicely constructed instruments, which pretty faithfully denote to us the states of the atmosphere without from time to time. Indeed, for any accurate information about it we depend entirely upon such instruments. So, diseases and remedies, and all sorts of emergencies, physical and moral, the wear and tear of life, are the instruments which test men's constitutions for us; and we should know little about it but for them.—*British Medical Journal, July* 12, 1862, *p.* 27.

121.—ON PAIN.

By Dr. P. M. Latham.

Pain may kill, it may overwhelm the nervous system by its mere magnitude and duration.

In vol. xiv. of the Medical Gazette, Dr. Borrett reports the case of a lady who died from the pain of gall-stones. Her nervous system was overwhelmed by the agony arising from a gall-stone impacted in the cystic duct. After continued suffering for sixty hours, she became cold and pulseless and delirious, and so died. After death, nothing was found to account for it but this gall-stone.

In Dr. Merriman's Synopsis of the Various Kinds of Difficult Parturition is a case, furnished by Dr. Gooch, of a woman in whom the severest pain and the most violent expulsive efforts still continued after the child was born, until she became cold and delirious, and her pulse gradually went out, and she died. After death, the pain and the expulsive efforts were found to be owing to a polypus, which had its attachment to the mouth and some way up within the neck of the uterus. Dr. Gooch remarks upon the case "as a striking proof that mere pain can destroy life."

There is an eminent instance of death from pain—death by excitement and torture of the nervous system, followed by its

fatal exhaustion, to which I will just allude. Perhaps it has often occurred to many minds.

In all civilized nations calling themselves Christian, capital punishments are now so contrived that death should result from a sudden arrest being put to the functions of an organ essential to life, and thus the criminal be mercifully spared (as far as possible) the pains of dying. But there was once a manner of capital punishment, esteemed the most ignominious, and reserved for the most criminal, which, when the Roman empire became nominally Christian, Constantine thought fit to abolish: I mean crucifixion. It is obvious that crucifixion did not at once put a stop to any vital function, but brought on death by pure, unmixed, protracted torture. The victim died from slow exhaustion of the nervous system by pain.

"It was the *third* hour, and they crucified Him. And when the *sixth* hour was come, there was darkness over the whole land until the *ninth* hour. And at the *ninth* hour, Jesus cried with a loud voice, and gave up the ghost" (Mark xv. 25, 33, 34, 37).

Six long hours of dying agony! The thought is very awful.

In that complex of action and suffering which belongs to injury and disease, small things and great, accidents and essentials, are often so crowded together as to defy analysis, and causes and effects get so mixed that one can hardly tell which is which. Therefore it is an occurrence to be made much of, when some great fact stands out and claims its sure and unmistakable agency in the great result. Here we have pain and death, and the sure connexion between them. And the rare and extraordinary cases, displaying the connexion, have their value mainly in this, that they show what, under given conditions, is possible, though it seldom comes to pass. The result, complete and accomplished in the few, denotes the tendency which is wrapt up in the many; even the tendency of pain to death ever working towards it, and often making near approaches to it, but seldom arriving at it.

From the same or the like causes as the pain that kills also comes the pain that brings to the verge of death, and yet allows to live—from hepatic, renal, and vesical calculi—from morbid growths involving nerves—from some forms of colic. Pain from all these can produce the cold skin, the collapsed features, and the failing pulse. And when it does, who can mistake their meaning? Who can doubt what should be the treatment? The parts are various; the present actuating causes are various. But pain is the common adjunct of them all; and so crying and so urgent as now to become practically in each case the representative of the whole malady — the sole indication of treatment superseding and excluding all other indications for the time.

In this range of cases, the whole business of the physician is with the nervous system. All the power and all the expedients

of his art are needed to lull it, and, if possible, to lay it to sleep in its agony, and at the same time to hold it up in its weakness, and prevent it from sinking into death.

In the vast majority of cases to which pain belongs, it is no superadded accident, but a true part of the disease. It is involved in the morbid processes going on. It grows out of them, and is sustained by them, and lasts as long as they last.

Now the pain which waits upon the essential movements of disease would be a pretty large theme to discourse about comprehensively, and too much for our present purpose. The view we now take can only be partial, but it need not be erroneous.

Whatever sick-bed we stand by, and hear severe pain complained of, and find it the accompaniment of febrile or sudden or rapidly progressive disease, we must not leave that bedside until we have satisfied ourselves whether anything, or what, is to be done expressly for the pain. The result may be, either that we altogether decline to meddle with it, or that we make it our chief indication of treatment; but not without due deliberation in either case.

There is a wide range of cases equally displaying the subjection of the pain, as in its nature, so in its treatment, to the nature and treatment of the disease; equally showing the final cessation of the one dependent upon the cessation of the other, yet urgently calling in the meantime for something to be done specially for the pain, for the sake of present palliation and relief. And it is still the *duration* of the disease which compels this practice too. But now its duration is *long* (it may be), very long, while the pain being severe (it may be), very severe, cannot be borne, until the disease has accomplished its entire course and brought itself to an end.

Take a severe attack of acute rheumatism in a man previously healthy and at the prime of life. There are extreme force of vascular action, extreme heat, profuse perspiration, swelling of many joints simultaneously, and pain, which is agonising and unremitting.

Now, if this disease had a certain stated period to run, and that a short one; if it could be trusted to come to an end, or to conditions of sure mitigation in two or three days; then we might be content to treat it as a whole, and need not be fearfully calculating the tendency of its particular symptoms, or seeking remedies for them; we need not be making much of, and be especially treating, its pain. Pain, severe though it be, so long as the nervous system bears its well and reacts upon it, may add celerity and force to the existing disease; it may quicken and invigorate all its actions, without disturbing their natural course and harmony.

But acute rheumatism has no stated period to run. It is

oftener long than short; oftener an affair of weeks than of days. And pain is its accompaniment from first to last; pain (it may be) of the greatest severity, and such as the nervous system cannot long continue to bear well and to react upon. Two or three nights and days made sleepless by pain tell fearfully through the nervous system upon the whole bearing of the disease. In proportion as the nervous system is brought under the mastery of pain, and is depressed, or subdued, or exhausted by it, the entire disease suffers fluctuation and change. The pulse, hitherto steady to a certain number, varies between great extremes; and hitherto strong, it becomes weaker. The heat of skin, which was uniformly high, becomes lower, and, at the same time, unequally distributed. And now strength begins to pass into weakness; and now one vital organ and now another gives notice of something wrong. This may be the semblance only of disease; but it may be the reality.

Observation, I think, may be trusted for the fact that pain can do all this. Most rationally, therefore, does it become a special indication of treatment in acute rheumatism whenever it seems likely to do it; that is, whenever it is in excess. Thus, in the conduct of a case of acute rheumatism, the chief and greatest remedy sometimes is opium. It is almost always a necessary safeguard.

What has been said of the pain of acute rheumatism holds good of the pain which belongs to other diseases acute in their kind, and of uncertain duration. It holds good of the pain which attends acute gout and acute erysipelas; which attends the inflammation, acute, severe, and involving many and various structures, produced by large burns, and lacerations, and fractures, and sprains, and by the complex of several in the same man. We know, indeed, that gout, and erysipelas, and inflammation, are curable diseases, and that their pain will cease whenever they come to an end. Nevertheless, in the meantime, their pain being more than the nervous system can well bear, calls aloud for relief and remedy. For the exhaustion conducing to death, and even actual death may come as much from the attendant pain as from the diseases themselves.

More need not be said. For I am not specifying rules, but declaring a principle—a principle that receives abundant illustration from the fact to which all successful practice can testify; namely, that oftentimes the medical treatment of these formidable affections has turned, from first to last, upon the right administration of opium.

What an easy and simple affair would be the practice of medicine, if we could always find out what and where the disease was, and then had only to lay hold of it (so to speak) in its seminal essence, and to treat it, and cure it; and thus could

treat and cure exclusively all that belonged to it; its fever and all its disturbed functions of parts, and all its excitement or depression of blood-vessels and nerves, and all its pains!

And, indeed, one has now and then seen all this accomplished. One has seen a hard and bounding pulse laid hold of as the sole indication of treatment, and an heroic bleeding brought to bear upon it as the sole remedy. And, forthwith, an acute inflammation, just emerged, with its many formidable accompaniments has been summarily swept away. Here, surely, a great deed has been done; enough to make a man proud of the power of his art, and a little vain, perhaps, of his own skill in wielding it.

But disease in its progress, *after it has some time emerged*, is apt to split itself into fragments, and each fragment to become a several centre for new morbid actions and suffering, to radiate from, and to present a several scope, at which new remedies must take their aim. Pain is one of these fragments and one of these centres. — *British Medical Journal, June* 28, 1862, *p.* 678.

122.—ON RENNET WINE.

By Dr. George Ellis, Dublin.

[The substance ordinarily sold under the name of Pepsine is perfectly inert. It will not coagulate milk, and has no digestive action whatever on animal substances.]

About two years since, failing to obtain any benefit from this new remedy, I had recourse to the direct preparation of a solution of gastric juice from the calf's stomach; and so gratifying has been the result, so satisfactory and remarkable its effects as a remedy in gastric derangements, that I wish to communicate to the profession the mode of preparation which I have found the most convenient and the best for every purpose.

Take the stomach of a calf fresh from the butcher; cut off about three or four inches of the upper or cardiac extremity, which, containing few glandular follicles, may be thrown away. Slit-up the stomach longitudinally; wipe it gently with a dry napkin, taking care to remove as little of the clean mucus as possible. Then cut it into small pieces (the smaller the better), and put all into a common wine bottle. Fill up the bottle with good sherry, and let it remain corked for three weeks; at the end of this time it is fit for use.

Dose.—One teaspoonful in a wineglassful of water immediately after meals.

Test of Quality.—One teaspoonful will solidify, to the consistency of blancmange, in from one to two minutes, a cup of milk (say eight to ten ounces) at the temperature of 100° Fahr. In

this action on the caseine of the milk it may be said that the wine alone would have some effect, but wine will not solidify milk, nor will it curdle it at all except at a much higher temperature and in much larger proportion than the above.

This preparation, which I propose to call "Rennet Wine," has many advantages over the watery infusion of rennet which is obtained from the salted and dried calf's stomach (used largely in cheese making). The latter is also a good preparation, solidifying milk in the same way while it remains fresh; but it is much more troublesome in the making, and in warm weather it soon begins to react on the animal matters contained in it, and becomes spoiled. For these reasons it cannot conveniently be used in medical practice. Rennet wine, on the contrary, is so easily made, requiring no salting or drying of the stomach, is so inexpensive, and can so readily be prescribed in private and in hospital practice, that I have little doubt, when known, it will become one of the most valued remedial articles in the hands of the profession.

I recommend the employment of good sherry, because this wine has sufficient body to keep the infusion perfectly sound for any length of time, and is not so strong in alcohol as to suffer any apparent loss of solvent power in taking up the active principle of the rennet.

To the physiologist it is unnecessary to say that this remedy should be given after or during, not before, meals. A single dose given daily after dinner I have found quite sufficient in the general run of cases requiring it. How this small quantity can act so speedily and effectively it is perhaps not easy to explain, when we consider the large supply of the gastric secretion necessary for the thorough digestion of an ordinary meal. The action is probably due to those indirect chemical changes, called catalytic transformations, which some organic substances, by their mere presence and contact, induce in each other and in other proximate principles; and thus, perhaps, the conversion of a small portion of food into healthy albuminose by this small quantity of sound gastric juice may induce the same healthy action throughout the stomach contents during the entire process of stomach digestion. It is at least equally difficult to explain the action and rapid extension of ferments, generally, in their appropriate solutions.

I have often been forcibly struck by the magical effect of this small dose in removing offensive odour from the breath of young persons,—a distressing symptom, sometimes aggravated rather than relieved by purgative medicine; and I may also mention that in one of these cases cod-liver oil was easily tolerated afterwards, though never before. It would be a mistake, however, to suppose that the oil is at all acted on by the gastric fluid.

The oil globules of coagulated milk are seen, under the microscope, unchanged, though imbedded in the solidified caseine; and the digestion of oil, taking place only after passing the orifices of the pancreatic and biliary ducts, is entirely intestinal; but intestinal digestion itself must surely be influenced essentially by the healthy preparatory action of the stomach secretion on the albuminous compounds presented to it, and thus the digestion of oils and fatty matters, though not even commenced in the stomach, may be facilitated by their being mingled with the products of healthy gastric action, when submitted to the succeeding operations of the pancreas and liver.—*Medical Times and Gazette, July* 19, 1862, *p.* 56.

123.—ADMINISTRATION OF COD-LIVER OIL AND IRON.

M. Janota describes a method of administering iron in combination with cod-liver oil. The iron is combined with the oleic acid of the oil. Seven drachms of carbonate of soda are dissolved in eight ounces of distilled water; the solution is filtered, and to it is added a solution of seven drachms and a half of sulphate of iron in eight ounces of distilled water. The precipitated carbonate of iron is washed, and to it is added four times its weight of oleic acid; and the mixture is heated to gentle boiling. When a large portion of the water is evaporated, and the mass has acquired a black colour, with evolution of carbonic acid, the oleate of iron thus formed is shaken in a bottle with sixteen ounces of cod-liver oil, set aside for a short time in order that all the water may be separated, and filtered through white paper. The preparation has a beautiful red colour, and in smell and taste differs little from ordinary cod-liver oil. It must be kept in well-stoppered bottles.—*Esterr. Zeitschr. für Pharm.—British Med. Journal, Oct.* 1861, *p.* 394.

124.—ON THE IMPORTANCE OF THE DIGESTIVE ORGANS IN THERAPEUTICS.

By Dr. Thomas K. Chambers, Physician to St. Mary's Hospital.

[The luxuriance of a tree cannot well depend more upon its roots, than does the health of a man on the healthy state of his digestive organs. On the deficiency of their power of appropriating food, depend nearly all the cases of anæmia and general debility which make up a great portion of our daily practice.]

The blood starved of its requisite supply does not sufficiently stimulate the vitality of the tissues, and so tubercular or semi-vital growth takes the place of normal growth. Degeneration

may originate in the same way. The unrenewed *effete* particles remain as fat in the tissues; and so you get softened and dilated hearts, cirrhosed liver, Bright's kidney, atrophic softening of the brain, apoplexy, &c.

To the same cause may be traced an obscure inefficiency, rather than disease, of mind, very common among our chronic invalids and habitual patients. They complain that they awake in the morning, not only unrefreshed by sleep, but seemingly more tired than when they went to bed. They have an unaccountable despondency and carelessness about the future, accompanied by a conviction that something or another unfortunate is going to happen. They have no power to prevent it; and do not know that they would exert the power if they had it. They drag their languid limbs to their daily task unwillingly; but feel quite unable to do anything as they ought. The figures get confused as the merchant adds up his ledger; the *employée* remembers he has an important duty to perform, but cannot recollect what it is; even the light labours of daily housekeeping are a heavy burden. A morbid dislike to the idea of food causes the attractions of the family meal to be simply repulsive. Sleep is sought, but is broken by painful dreams, or fidgets, or wakefulness. If there is any innate or hereditary tendency to insanity, now is the time when it is developed; spectral illusions, derisive, tempting, or foolish voices half deceive, half irritate the victim; and he is fortunate if he is saved from crime or a lunatic asylum by the curable source of his unhappy state being correctly ascertained. But if there is no previous tendency, the mental miseries may go on for years and years without producing any real unsoundness of mind. Without any further symptoms even than these you may be safe in referring the *origo mali* to the digestive canal.

There is also a suspicion that some diseases of malassimilation, such as gout and rheumatism, may be due to imperfections of the digestive organs. In them an organic acid, uric or lactic, and perhaps others yet unnamed, are found in pernicious excess over the alkalies; and, as acids are certainly formed by the decomposition of the food, and one of them (the lactic) especially, in great abundance, it is presumed that the cause of the malassimilation resides in the viscera which contain the food during digestion. This idea that the digestive organs are to blame for gout and rheumatism, is of very old date; yet the evidence for it does not increase; and it remains, as of yore, a strong presumption, waiting to be confirmed by a physiological tracing of its steps.

Whatever value we may attach to the evidences of the dependence of diseases on the digestive organs, it is very clear that we look to them for relief from these diseases. Out of the

six or seven hundred forms of drugs in habitual use, very few indeed are not occasionally offered to the stomach for acceptance, and an overwhelming majority of them are adapted for use only in this way. If we are to continue to employ this time-honoured agency in our attempts to remedy bodily maladies (and I see no indications of a change at present), it is surely of prime interest to secure its active and efficient condition. It is waste of toil to try to get in by a closed door.

Let it be observed, that it is not constructive medicines, not alone aids to the normal work of the alimentary canal, that we introduce through its walls. We expect it also to take up those whose agency is, physiologically speaking, its direct converse, whose effect is that of augmenting destructive metamorphosis. We call upon it to take up calomel as readily as bark, and wine, and oil. It is, therefore, equally of importance to have it in a normal working state when our aim is destruction, as when it is arrest of destruction or construction. When a sudden poison or paralysis has fallen on these paths of absorption, our hands are paralysed too; the staffs we lean on fail us. What buckets of physic used to be poured through the half-dead bowels in cholera! It might just as well have been thrown at once into the night-pan—its ultimate destination if the patients lived long enough. They did not always do so; for I once found a drachm of ipecacuanha, which had been administered three hours before death, safe in the stomach. It had produced no vomiting, and had not been moved towards the pylorus. Again, what enormous quantities of opium may be given by mouth to a patient with delirium tremens by an incautious practitioner, who does not reflect that the reason of its not acting is that it lies dormant in the stomach, and is of no more good than if it were in the pill-box! But let the primæ viæ be cleared by a dose of calomel and a purgative enema, and the tension of the nervous system be relieved by absolute quiet and monotony, and then an ordinary dose of opium, more than which ought never to be administered, produces calm, rest, and joyful waking.

But it is when reconstruction is the immediate object of the remedies to be administered, that the importance of the digestive organs is most obvious. Mark the difference between two consumptive patients taking cod-liver oil. One, whose digestion has been carefully brought into a healthy state, swallows it in large quantities, at any time of the day you please, complains of no inconvenience, enjoys life, and does credit to the doctor, laughs and grows fat. Another, in consequence very likely of some easily removeable cause, nauseates the smallest dose; if, in spite of instinctive repugnance, it is forced down, it gets rancid; fœtid painful eructations follow; and the patient not only gets no advantage from the drug, but is prevented by it

from deriving the usual benefit from daily food; appetite is lost; and rapid emaciation shows how little construction is carried on. Remark, again, in continued fever, how the period of the restored renewal of the poisoned nervous system, which is announced by the ceasing of delirium, follows immediately on the clearing away of the dead epithelium from the mucous membrane—a beneficial change, of which I have taught you to see evidence in the moistened and cleaned tongue; whereas, till this change takes place, no step is made towards recovery. In both instances, the difference between one case and another, between the patient who is a credit and a joy to us and the patient who continues to wring our heart with anxiety, lies in the more or less vitality of the digestive mucous tract.

Thus, however sceptical we may profess ourselves as to the dependence of gout and rheumatism upon the digestive viscera, it is through those organs that we mostly try to reach the malady. It is through those organs that we endeavour to get our large doses of potash and our iodide of potassium into the blood. There are those who, in their treatment of these affections, rest more exclusively on the drugs named than you have seen me do; and to them, therefore, even still more than to me, should the integrity of the digestion be a care.

We must remember also that it is of no use to employ the best possible means of staying the morbid symptoms, unless the digestive organs assimilate sufficient material to replace that which is diseased, and which we are bestowing pains on the removing. We waste our labour in clearing away abnormal structure, if new does not take its place. This is too much forgotten by medical men when they use blood-letting, general or local, as a means of cure. They often starve their patient at the same time, thus intensifying and exaggerating all the harm likely to arise, increasing the anæmia, and still further depressing the nervous system. The truly rational plan is, when you take away old blood, to try and put new in; and, to that end, to get as much fresh food assimilated as possible. Thus the least harm is done, and the greatest good that the remedy is capable of. The neglect of this precaution is one of the causes of the bad repute, so much worse than it deserves, into which bleeding has fallen of late years. Those who would restore its good fame must be careful of their patient's digestion.

The digestive tract has not the advantage possessed by the respiratory and by the upper part of the urinary apparatus and other parts, of being double. An animal has two lungs, two kidneys, two hemispheres to his brain, two testicles or ovaries, but only one stomach, and one intestinal canal. This is a reason for great caution in preserving its integrity, and explains the powerful influence which derangement of any one of its

parts has not only over the whole tract, but over the whole body.—*British Medical Journal, April* 26, 1862, *p.* 427.

125.—ON A NEW PORTE-CAUSTIQUE.

Every surgeon knows that it is sometimes difficult to apply the lunar caustic on account of its shape, which we cannot always *ex tempore* adapt to the exigencies of the case. It is often too blunt for a minute ulcer, too thick for a fistula, too short for the cauterisation of the os uteri, and its application to the pharynx entails the danger of the patient swallowing the piece of caustic if it is not firmly set in its *étui*. Although surgeons will never be at a loss to overcome these difficulties wherever it is necessary, it may still be useful to call the attention of your readers to a new, ingenious, and extremely simple contrivance suggested by one of our Florentine physicians, Dr. Galligo. He has found that pine-wood, such as is generally used for lucifer matches, can imbibe a quantity of caustic liquid sufficient for rendering it available for all ordinary cauterisations. Concentrated acids, the liquid nitrate of mercury, and a concentrated solution of nitrate of silver, are all most readily imbibed by a wooden pencil of this kind; and as such a pencil can, on the spot, be cut into any shape that may be required, it seems certainly to offer some advantages over the more or less clumsy pieces of lunar caustic generally employed. The smallest point may thus be cauterised without any injury to the surrounding tissues, the narrowest fistula may be passed through, and the remotest point of the pharynx be touched without any danger of an accident, the caustique and its porte-caustique being of one piece. If nothing else is at hand, the wrong end of a lucifer match, or even a tooth-pick may be used. But the piece of wood should always be thoroughly soaked, and the adhering drops wiped off, as otherwise the wood might offer the same inconvenience as the sponge, the hair-brush, or even lint, all of which allow the liquid to ooze out under the slightest pressure, and to fall on places for which it was not intended. Last year M. Diday published a note on the subject in some French periodical; but Dr. Galligo's idea dates as far back as 1859.—*Medical Times and Gazette, June* 14, 1862, *p.* 624.

126.—ON MEDICAL EXPERIENCE.

By Dr. P. M. Latham.

My own sixteen years experience of fever and febrile diseases and of their treatment, may be taken as a fair sample of what

medical experience really is. It was no fable, but made up of undeniable matters of fact. Time went on, and proved them more and more, and showed them still consistent and trustworthy. And they were trusted accordingly, and the practice grounded upon them had abundant success. But the facts were constant and consistent only for their own season. They did not hold together long enough (for what is sixteen years after all?) to become one solid truth. They were but fragments of truth after all. Yet, fragments as they were, they were not worthless. They go to make up my stock of good working-materials, and are still of use to me every day. They do not serve me for building systems. But they help me to treat diseases and to save lives.

How is it that in medicine truth is thus measured out to us in fragments, and we are never put in trust of it *as a whole?* How is it that experience, upon which alone we can depend for all the good we do, is continually breaking down under us as a *system?*

Well, one cannot indeed account for it; but one is not surprised that so it should be. What with inscrutable things within the body and inscrutable things without, and incalculable and incontrollable withal, it is no wonder that experience should sometimes find itself at fault, and be not always able to shape the future out of the past upon a large scale.

The one fact has been already noticed, of things within the body belonging to life and health and disease, which are hitherto untouched by human knowledge. All medicines give intimation of it more or less in the course of their operation. Specifics present summary proof of it from first to last.

The other fact, too, deserves to be well pondered, of forces without the body exercising dominion over all that is vital within it—forces of some of which we know neither what they are nor whence they come. But they are full of reality and power.

On my first entrance into my profession, and for some time afterwards, nothing was less intelligible to me than the writings of our great physician. All his discoursings about epidemic constitutions, and stationary fevers, and intercurrent diseases, and the same diseases needing different treatments from time to time, were to me dark and mysterious. And just the same, I am persuaded, is the case with every man who studies medicine; and the more so, the more he finds himself thus early in the presence of real disease, and in the society of those who, like himself, are daily watching it, and ministering to it, and comparing notes about it. For then the mind is at its freshest and its best, and is most apt for observation. It holds strongly to its own conclusions: and why should it not? It takes for abso-

lute truth what has already come to it authenticated by a hundred instances: and why should it not? It is not yet upon the look-out for what may gainsay or invalidate its own well observed facts concerning diseases and remedies: why should it? Tell, therefore, the student and the physician of a few years standing, that there is something more in diseases, and in the effects of remedies upon them, than can be seen and known from any number of individual patients during any given period of time; and he will neither understand you nor believe you. Yet there is something more, nevertheless; and physicians at length come to own it.

Choose almost any febrile disease you please, and question the experience of honest and well-informed physicians about it, and what it was, and how it was best treated at their own time and place of observation; and you will find them tolerably well agreed. But take this experience and agreement of theirs to determine its nature absolutely, and fix the canon of its treatment for all places and all times; and you will run into a great practical delusion. Still a man must have lived long enough to see many phases of medical practice, and been himself engaged in it all the while, before he can be in a condition freely to acknowledge what is here implied.

Take pneumonia. It has been treated by bleeding, and got well. It has been treated by brandy, and got well. It has been left to itself, and got well. And the bleeders, the brandy-givers, and the doers of nothing at all, respectively have had a vast deal to say for themselves and against their rivals. And which of them are to be our guides and masters in the treatment of pneumonia? None of them for a single day, much less for always. Besides, the treatment of pneumonia happens just now to be a matter of high controversy; and from controversy often comes exaggeration. And exaggeration often does the work of falsehood unawares. Therefore I would willingly have chosen some other instance, but that I wanted such *internal* febrile disease for illustrating my purpose, as, whenever it exists, declares itself infallibly. And, since erysipelas well served my purpose, because all about it was plain and unmistakeable to the eye; so now pneumonia will do the same, because, of *internal* diseases, it and all about it are best ascertained by the ear.

Now, we have the best testimony which the ear can afford to the fact that pneumonia has gone through all its processes of disease and reparation, now advancing, now receding, until the lungs have finally recovered the conditions of health, when it had received no formal medical treatment whatever. Again, we have the sure witness of the ear to the same fact, when the pneumonia had been treated by brandy; and yet again to the same fact when it had been treated by venesection.

Here the means (for even the doing of nothing may be now deemed to exercise a positive influence)—the means, I say, and the end, are things so obvious, and are found so closely following each other, that it is impossible not to put down their sequence to the account of natural connexion. And this being the case, and there being such vast odds between doing nothing, giving brandy, and drawing blood, there is no wonder, if the current of a man's experience had run generally in favour of any one of the three, that he should hold one to be absolutely and always right, and the other two absolutely and always wrong.

No wonder, indeed. But then practical medicine is unlike all other things in the world. It has its own conditions; and they prohibit all such summary conclusions as these. Let a man use his own experience as best he can for the present; but let him not, upon the strength of it, rebuke the experience of all past times, and dictate to the experience of all future; for, if he live long enough, nothing is more likely than that he may find himself fallen under his own reproof, and inconveniently confronted by his own maxims. From having been a bleeder, he may become a stimulator or a passive looker-on in cases of pneumonia. He may find himself interchangeably all three in the course of thirty years.

And what is the explanation of all this? People not over well disposed towards us and our profession (and there are many such) find a sufficient key to the whole matter in the caprice of medical men; and they take this key of theirs, and turn the lock, and bar the door against all further question! "It is neither more or less," say they, "than the caprice of physicians; so let us have done with it and them."

But let the world think of us as it pleases, there is a rational practice of medicine nevertheless. And let medical men themselves still be right and wrong by turns, seeing clearly and doing successfully what is at present to be seen and done, yet mistaking the same for something more sure and permanent than it really is; finding (as it were) a fragment of truth, and learning well what it will now bear, and now safely trusting their own weight upon it, let them foolishly deem it a rock and build a castle upon it. Whatever physicians may be, or the world may think of them, there is, I say, a rational practice of medicine nevertheless, and there are causes sufficient to explain its greatest anomalies. A cursory glance can only here be given at what these causes are.

The vital being of every individual man has its qualities. What is summarily called his Constitution is full enough of its own conditions to require in almost every case some deviation from the standard treatment of the particular disease. Not seldom

are these conditions sufficient to justify great differences, and even contrarieties, in practice. They are never to be lost sight of at the bed-side of the patient; and we consider ourselves as never practising more rationally than when we practice in obedience to them.

Then there are the things which are the commonest and the most inconstant in the world, yet which do and must surround every man as long as he lives; cold and heat, moist and dry, dense and rare, foul and fair. All these reach and rule and qualify the vital being of us all, and so vary the aspect of our diseases and necessitate changes in their methods of treatment. Here is the very subject which in our own times has especially attracted the interest of the world at large; viz., the influence, upon the well-being of mankind, of the air which they breathe, and the places where they dwell. Governments, military and civil, national and municipal and domestic, have expended abundance of study and labour and money upon it; yet not more than it deserves. Practically, what physicians have to do with the subject may lie in a small compass and be reckoned by a few items, or it may expand itself infinitely, and run into particulars innumerable. Our patient may be an individual, a family, a community, or an army. Our concern may be with the cleanliness and ventilation of a single room, the drainage of a town, or the site of an encampment.

It is difficult to speak rightly of things which have no body or form presentable to the senses. But we *must* speak of them, and dwell upon them. Though we know hardly by what name to call them, they cannot be ignored; for they have oftentimes a greater sway over the world without and the world within us, than all things of substantial being put together.

Now bearing upon diseases and upon their medical management, there is a certain thing which I have thus far designedly suppressed; for I was afraid of darkening the subject with a mystery, and so kept it out of sight. But this mystery is a truth. Mystery indeed it is *to us*, for we know neither what it is nor whence it is; but it demands notice from its effects, which are full of reality and power. It has been called the "Epidemic Constitution" of certain years, or series of years. And so let it still be called, rather than by any name of more scientific pretension. For it intimates nothing of the nature of the thing itself. But it acknowledges a reality and a power. This is enough.

The most eminent characteristic of this "Epidemic Constitution" is its levelling influence. Where it exists, and as long as it lasts, it subdues into conformity with itself all that is peculiar to the individual man's constitution, as well as peculiar to places and external things. These, which are wont to be so potent in

modifying the forms of diseases and ruling and qualifying their treatment, now disappoint our reckoning. Behold, for a season mankind in various places and circumstances require a treatment for their diseases contradictory to the experience of former times. Then wait for a season, and behold, mankind, in the same places, and in the same external circumstances, will require a treatment for the same diseases contradictory to the experience of the present times. But neither now, nor formerly, nor hereafter, will there be found in the vital being of men themselves, in their places or circumstances, anything to reconcile the contradictions or at all explain them.

But it is not only that diseases, having this, that, or any name, are rendered severally unlike themselves of other times by the treatment which they now need and bear. This, indeed, would show an agency at work of great power — an agency, however, only of special and partial bearing. But these same diseases, which are thus made severally unlike themselves as they were at other times, become all like one another as they are at the present, by reason of the need they have of now receiving, and their capacity of now bearing, the same or similar modes of treatment.

Thus febrile diseases—diseases, I mean, which require fever for their development, and which altogether make up a large number of the sum total of all that flesh is heir to—become types and tests and interpreters of one another at the times wherein they are found, in what concerns their treatment. Thus all so-called inflammations, in every part of the body, also diseases the products of different contagions and contrasted in their outward forms of presentment, and so bearing different names —measles and scarlatina, the typhoid typhus fevers—all give and take, impart and accept illustration mutually and interchangeably. You read them through one another. In treating one you learn to treat another. What one needs and bears, another needs and bears. These are facts of great significance. They seem to point to some one wide-spreading and pervasive influence ruling and dominating over them all alike.

But do the diseases named denote the limit of the influence in question? I believe that it may be traced much further. I believe that even those diseases which more than others are proper to the individual man, traceable to what he eats and drinks, or does and endures, such as gout when it is a febrile disease, the gout of distinct attacks and paroxysms, even they often own subjection to times and seasons. Now for a series of years the indications, which guide the treatment of particular cases, will generally demand remedies of greater power and of one kind; and then for a series of years the indications will generally be satisfied with remedies of less power, and of another

kind. But only let present indications be justly chosen, and fulfilled according to a fit measure, and then the treatment which they suggest, while it is variable at different times, will be at all times uniform in its success.—*British Med. Journal, June* 14, 1862, *p.* 617.

127.—IS ALCOHOL FOOD?

By the Editor of the BRITISH MEDICAL JOURNAL.

We possess no proof positive of the fact so very generally assumed, that alcohol is a food.

It may be most fairly suggested, until the contrary be shown, that alcohol acts by stimulation of the nervous system, by hastening and assisting the vital functions, the wear and tear of the body, the disintegration of the tissues, and the manufacture of lymph; and that by such disintegration of tissues the wasting body supplies itself with food during the period of sickness—in fact, lives upon itself. The alcohol, we may argue, is the stimulant and promoter of the disintegration. It is indirectly the cause of the production of food, but assuredly not *(if such be its only action)* food in itself. Until the contrary be shown, this, we affirm, is the only fair and legitimate conclusion to be deduced from the premises before us.

Now, if proof could be given that a person existing for some days solely upon an alcoholic-drink regimen gained in weight, or even did not lose in weight, then we should possess strong *primâ facie* evidence that alcohol is a food. But when we find that the person who has been kept alive all these days by alcoholic drinks—*i.e.*, by water *plus* alcohol—has lost greatly in weight, has become emaciated, has used up his own flesh and blood in the preservation of his life,—in such case, we have assuredly no right to say more of the alcohol than this: that it acted a useful, or even, it may be admitted, an essential part, in the struggle for life. We repeat it, we have no proof that, under such conditions, it did more than act as a stimulus.

Hence, then, as it seems to us, the clinical facts which some writers have produced as demonstrative of the food-nature of alcohol are, as such, worth absolutely nothing. The proof here must be rigid—one of the scale and balance kind. Let us be told what the weight of the patients was *before* the experiment was commenced, and what *after*. Let us know how much water was swallowed with the alcohol; and be satisfied that nothing but diluted alcohols were taken while the experiments were going on—that rigid abstinence from other things was positively maintained. The analysis of such facts would enable us to arrive at something positive on the subject.

We have no hesitation in saying that to call alcohol food, in

the present state of our knowledge of its effects, is an abuse of language. Those substances only can rightly be called food which are essential for the purposes of life; which form a part of the healthy body; which are capable (under the influence of the organic processes) of being incorporated, wholly or in part, decomposed or undecomposed, with the body—assimilated, as physiologists call it. We do not call tonics, which assist the primary digestion in the stomach, food; and if (which we say not) it be true that alcohol is of use only as aiding, by stimulation, in the secondary digestion—the disintegration of the tissues—neither can we call alcohol food. Let it be clearly understood that we do not in this deny that alcohol is a food. What we affirm is, that we possess no particle of satisfactory and scientific evidence to show that it is such. Those who affirm it to be should give us something like a tangible proof of the fact—something beyond the mere vague surmises of their own opinions. Let them show that a body fed solely on alcoholic drinks for several days has gained, or at least not lost, in weight; and they will have some facts upon which to found the assertion. But to say that an emaciated creature who rises from his bed of sickness, and has swallowed during his sickness large quantities of water and alcohol, is a living proof that alcohol is food, is manifestly an unfounded assumption. We have as already stated, just as good, and in truth much better, grounds for saying that the alcohol acts solely by its power in assisting secondary digestion, in aiding the wasting of the body, the wear and tear of it, and thereby producing materials—lymph—for the support of the system at a time when disease has arrested the functions of primary digestion, &c.—*Brit. Medical Journal, June* 14, 1862, *p.* 629.

128.—ON THE INFLUENCE OF OZONE.

By Dr. Pfaff.

Dr. Pfaff, believing that advantage would ensue from a more active intercommunication of the results of ozone observations, gives some account of those which he has obtained at Plauen in Saxony, at 1050 German feet above the level of the sea. He has not found the direction of the wind influencing the presence of ozone, and he does not agree with those who maintain that the atmosphere is never free of ozone. He has found stormy weather exceedingly favourable to its production, the ozone appearing immediately in large quantity during a storm suddenly coming on after a succession of fine weather unaccompanied by ozone. Test-papers, which had remained long unchanged, would then denote 8° of ozone, while as soon as the storm had passed away all reaction on the test-paper would cease—the

storm seeming to bring and take away with it the ozone. Similar but less rapid increase in the ozone was observed during mere changes of weather, as when fine weather of long duration was followed by rain. As a general rule, moisture was favourable to the development of ozone, although this has sometimes been absent during several successive wet days. Indeed, the ozone was usually found at its lowest point during the continuance of any unchanged weather, whether wet or dry. Little or no influence seems to have been exerted by temperature, the proportion of ozone not being greater in winter than summer.

The following are Dr. Pfaff's conclusions with respect to the influence exerted by ozone:—1. A large proportion of ozone in the atmosphere acts mischievously on diseases of the respiratory organs. Persons suffering from tubercle or chronic catarrh of the lungs should possess an ozonometer, and when they observe that there is much ozone in the air they should remain within doors, or if they go out they should wear a respirator. 2. The ozone of the air exerts little or no effect on epidemic diseases, providing that these are not complicated with catarrhal affections. 3. A large amount of ozone in the air, whatever may be the direction of the wind, favours the development of inflammatory affections, and especially tonsillitis. 4. Other affections besides the above-mentioned do not seem to be influenced by the amount of ozone. It is well known that the air of apartments is nearly or quite free of ozone, although this may exist abundantly outside; but to the question as to how then can patients remaining within doors suffer when ozone prevails extensively without, it may be replied that they do so just as they suffer from the east wind in well-warmed apartments. It is not impossible, too that their sensitive nervous systems may be influenced by small quantities of ozone not detectible by the ozonometer. If this is the case, it might be desirable to deozonize the apartments by means of gaseous emanations. The possibility of doing this was accidently shown to Dr. Pfaff by the failure of his ozonometer to furnish indications as long as it was under the influence of the ammoniacal emanations proceeding from stagnant water.—*Med. Times and Gaz., Sept.* 27, 1862, *p.* 335.

129.—THE MODE OF ACTION OF THE ANTI-LIGATURE FORCEPS AND INTRACISORS; THEIR VALUE DEMONSTRATED.

At the operations performed by Mr. Lawrence, Mr. Savory, and Mr. Callander at St. Bartholomew's hospital on the 23rd of August, several continental medical gentlemen of eminence were present. After discussing various matters with them, Mr. Lawrence took the opportunity of showing and explaining to

them the *modus operandi* of the anti-ligature forceps and intracisors invented by Mr. Webber, of Tunbridge Wells: the former for arresting hemorrhage from divided vessels; the latter for stopping the current of blood through them, especially in cases of aneurism.

The action of the intracisors was afterwards illustrated and remarked upon by Mr. Savory, who, addressing the surgeons and pupils assembled, said: "Gentlemen, this portion of the femoral artery, just taken from the limb you saw me amputate a few minutes since, has been subjected to a sudden, firm, but only momentary grip of the intracisors, contrived by Mr. Webber for the purpose of obviating the necessity of employing the ligature hitherto ordinarily had recourse to. I send round for your inspection the instrument and the artery (which has been slit open) to show the effect produced upon it by the intracisors. You will see that while the inner coats throughout the whole circumference of the artery are as completely cut through as they could possibly have been by a ligature, the outer coat remains quite entire. Not only is the pain of constriction avoided, and other evil consequences which not uncommonly arise from strangulation by the ligature, and the process by which it is eventually got rid of, but the outer coat not being severed or materially damaged, no secondary hemorrhage can take place, and nothing is left to prevent the wound healing by the first intention. I need scarcely tell you, that as long as the inner coat of a vessel remains smooth, so long will the blood pass freely and continuously along its channel; but if by any means a roughness of the inner coat is brought about, a mechanical impediment is at once presented to the flow of blood over it, fibrination follows, and occlusion of the vessel takes place. The instrument unquestionably does its work perfectly." Mr. Savory then proceeded to operate upon the next patient, who had been given chloroform in the meanwhile.

We learn from a printed hospital report, that since their first introduction ten years ago, Mr. Webber has used these instruments upon upwards of 300 arteries and veins of large size, in the presence of Mr. Skey, Mr. Holmes Coote, and other surgeons in London and the country; but it does not seem that they have ever been generally employed.—*Lancet, Sept.* 27, 1862, *p.* 238.

130.—ON RIGORS AFTER SURGICAL OPERATIONS.

By James Paget, Esq., F.R.S., Surgeon to St. Bartholomew's Hospital.

Speaking of rigors, I wish I could provoke some one to their special study. What is the meaning of this shuddering, pre-

ceding, as it so often does, some of the most fearful maladies that we have to deal with? singular in its relation to the urethra, and to the formation of pus that has no free exit. I fear that we are as yet quite ignorant of its physiology; and I believe that we are too much in the habit of thinking that its essential or most significant element is the sensation of cold. But this is a mere sensation, and even only a subjective one; for, at least in agues, the temperature of the surface really rises before the rigor, and continues to rise all through its course. I venture to suggest (let it be my contribution to the study which I want to incite) that the best direction in which to study rigors is in their relations to convulsive disorders. My reason is, that they not only present all the essential features of convulsions, but may be replaced by them.

Three years ago I cut a gentleman for stone. Shortly after the operation he had a terrible rigor; and this was followed by great heat and sweating, and then by extensive suppuration in the cellular tissue over his chest. Again, some days after, another rigor occurred; and this was succeeded by a similar suppuration, and by other symptoms of pyæmia. Then some days later he had a severe epileptic seizure; and this was followed, in the same time and the same way as the rigors had been, by another suppuration. Then, after phlebitis and other mischiefs of pyæmia, he gradually recovered, and has had no cerebral disturbance since his recovery.

Recently, at St. Bartholomew's, a woman was under my care who had relapsing erysipelas. The earlier relapses were preceded by rigors of various severity. The last was preceded by a series of violent epileptiform convulsions; and these were followed by three days of complete coma, which seemed to be relieved when the erysipelas appeared. During the rest of her life she showed no sign of brain disease, and she died exhausted.

Again, this case had been told to me. A member of our profession had chronic pyæmia with repeated abscess-formations. In all the earlier part of his illness a rigor preceded each suppuration; in the latter part tetanic seizures took the place of the rigors.

I could cite other examples of this substitution of various convulsive affections for rigors; the occurrence of convulsions before eruptive fevers in young children is probably one of them; but these may suffice for the suggestion that I made; and I am diverging too far from my subject, which was to indicate, by the evidence of rigors and other premonitory symptoms, that, however local they may be in their external manifestations, all the forms of erysipelas, pyæmia, of secondary gangrene, secondary phlebitis, and the allied diseases, are really general before they are local; that they are the issues of specific morbid conditions of the blood, and, therefore, to be studied and treated after the

examples of those which are the types of the class; namely, the admitted eruptive fevers.—*British Medical Journal, Aug.* 16, 1862, *p.* 159.

131.—TREATMENT OF CONSUMPTION BY THE HYPOPHOSPHITES.

By Dr. J. Francis Churchill.

[The present paper takes into consideration the difference in the therapeutic action of the different salts of hypophosphorous acid.]

The hypophosphites which I have hitherto used are those of soda, lime, potash, ammonia, quinine, alumina, manganese, magnesia, and iron. I have also made a few experiments with those of zinc, bismuth, and baryta. In the treatment of phthisis I employ, almost exclusively, the hypophosphites of lime, soda, and quinine. I have found that the administration of the hypophosphites of potash and ammonia, usually produces an increase of expectoration, and symptoms indicating increased activity in the disintegration of the tuberculous deposit. These phenomena are in accordance with the facts already known respecting the eliminative action of these two bases. In some exceptional cases, however, I find them extremely useful as a means of promoting the resolution of chronic inflammatory exudations, either in non-tuberculous subjects, or when the tubercular condition may be regarded rather as a secondary complication than as the principal disease. In the first edition of my work on consumption, I mentioned a case of asthma of many years standing, dependent upon chronic bronchitis, which was successfully treated by the hypophosphite of potash. I have since then been equally fortunate in about twenty cases of a similar kind. The hypophosphite of ammonia appears to possess very nearly the same therapeutic action as the potash salt; but it is also endowed with a special stimulating effect on the secretion of the liver. I have found it useful in the same cases as the hypophosphite of potash. I have also prescribed it with great advantage in certain cases of hepatic derangement, either singly or combined with the hypophosphite of manganese. The eliminative action of the salts of potash and ammonia was pointed out by me in my earliest publications, and explains why some practitioners such as Taylor, by the injudicious use of them in consumption, have seen the disease all the more rapidly to run its course to a fatal termination." For the same reason, most of the uselessly complex formulæ published by Parrish of Philadelphia, which contain a variety of hypophosphites of different cases *in long array*, are evidently likely to do at least as much harm as good. The too prevalent idea that

phthisis *if curable by the hypophosphites* is to be cured by *any* of these salts given in *any* dose or at *any* time, shows the low state of medical observation as compared with that of the really exact sciences. A few experiments with the hypophosphites of magnesia did not produce results of sufficient importance for me to do more than merely mention them. This salt appears to have an analogous action to those of potash and ammonia.

More extended observation will be requisite to determine the exact difference between the mode of action of these different combinations. For the present, I think it advisable, *in the treatment of tuberculosis*, for the practitioner to confine himself to the use of those of lime and soda. The effects produced by these two salts, where properly administered, in phthisis have such a character of constancy, that I have seldom thought myself justified in intermitting them, or supplying their place by any other. Their therapeutical action is very similar; perhaps, the soda salt is somewhat the less active; the hypophosphite of lime appears also to have a more direct effect on the expectoration, which it sometimes diminishes somewhat too rapidly, thereby causing an increase of cough. In that case, it should be replaced by the salt of soda.

The hypophosphite of *alumina* I have sometimes used with marked benefit in cases of consumption, against diarrhœa, and *purulent* expectoration.

The hypophosphite of baryta, if I may draw a conclusion from a small number of experiments, seems not to have the same powerful or deleterious action observed in the use of other soluble salts of the same base, such, for instance, as the chloride. I have prescribed as much as ten grains daily for several successive days without any marked physiological effect: but I propose giving this matter a closer investigation at some future opportunity. The cases treated by the baryta salt were *not* cases of phthisis.

The hypophosphite of quinine I have found useful in the *incipient* diarrhœa of phthisis, in that of young children, and occasionally to modify the nature of the expectoration. It seems, however, to have less of the active properties of the acid than the other compounds.

I have employed *hypophosphorous acid* experimentally, and I have established beyond doubt, that it had in the free state the same action as when combined with soda or lime; but it acts with much greater energy, and produces more rapidly the series of phenomena which I call *pathogenic*. This identity between the action of the free acid and that which it has when combined with soda or lime, proves that the therapeutic effects in the latter case depend upon the acid and not on the base, as some therapeutists, such as Guencau de Mussy and Taylor, have supposed.

In the first edition of my work on consumption, I stated that the action of hypophosphites of iron should only be tried with great prudence, as in several cases for which I have prescribed ferruginous preparations simultaneously with the hypophosphites, their exhibition appeared to be followed by hæmoptysis, or hemorrhage in some shape. I also remarked that the association of iron with hypophosphorous acid, appeared to me unlikely to prove of much utility, as an anti-tuberculous medicine, because a sufficient quantity of iron to saturate the ordinary dose of acid would probably be dangerous, and certainly could not be given continuously without accident.

Subsequent experience has since fully confirmed these views. Not only do I find that hemorrhage was produced in almost every instance in which I have tried the hypophosphites of iron, but in patients who have been previously taking ferruginous medicines, I find it very difficult, at first, to keep the effects of hypophosphites within the limits of what I shall show in a subsequent paper, to be their proper, or, as I shall propose to call it, their *physiogenic* action. For this reason, I have almost entirely renounced the use of the hypophosphites of iron in phthisis.

The salt of manganese acts in the same manner, but with much less energy.

The experimental determination of the different modes of action of the numerous compounds formed by hypophosphorous acid and the various bases, offers a wide field of research; which, according to the usual rate of Medical advancement, it will, no doubt, take many years to explore.

My treatment of consumption resting upon the assumption that the tubercular diathesis depends upon the want or the undue waste of some *phosphorus* compound normally existing in the system and containing that element in an *oxydisable* condition; any preparation of phosphorus, which is at once *assimilable* and *oxydisable*, *may*, as I have frequently pointed out, act specifically against the disease: but *how far* and *how* it will lead to a curative result can only be ascertained by direct clinical research. Whether any compounds will hereafter be found to possess greater powers in this respect, than the hypophosphites of lime and soda, it is impossible to say in the present state of our knowledge of pathology and chemistry; but of this I feel assured, that none will yield results of a better-defined and more positive character than may already be obtained by the employment of these salts, when properly used, as I shall endeavour to show in a future paper. In fact, as I have already stated, these effects appear, to my mind, so clearly and scientifically characterised, that I find myself precluded, to a certain extent, from further experimentation with the other compounds

of phosphorus. However desirable it might appear that practitioners in general should be at the trouble of ascertaining what has already been effected in this direction, rather than waste their time and jeopardise the safety of their patients, by aimless efforts at novelty, it is too much to expect, in the present state of medicine and pharmacy, that any opinion of mine will have much influence in the matter. Pharmaceutical chemists will go on proposing new compounds of oxydisable phosphorus, as a commercial speculation, until we have got as many of them as we have preparations of iron, and probably with as little real utility. Against one thing, however, I wish to enter a decided protest. Several persons, both in Europe and America, have assumed the use of my name in connection with their preparations of the hypophosphites. This has been done without any authority from me, and is the more reprehensible, as some of these compounds, which have come under my notice, are totally unfit for medical use. I have long felt reluctant, from motives I have given elsewhere, to recommend the preparations of any particular chemist, but I find that the abuse of my name has been carried so far that I owe it, as a matter of justice, both to myself and to others, to state, in answer to the numerous enquiries I am constantly receiving upon the subject, that for several years past, the majority of my patients have had their prescriptions prepared by Mr. Swann, chemist, No. 12, Rue Castiglione, Paris, and that I have always had reason to be satisfied with the effect produced. His hypophosphites are prepared by the process described at the beginning of this paper. The salts are obtained by evaporation in vacuo.

Formulæ.—The salts of soda and lime have so little taste when dissolved in a proper quantity of water that I usually prescribe them in solution according to the following formulæ:—

℞. Sodæ hypophos., ℈ijss.; aquæ distill., f. ℥vj.

To be taken in six doses; one daily, in half a glassful of water, milk, wine and water, or tea. Or else

℞. Calcis hypophos., ℈jss.; syrup comm., f. ℥vj.

A tablespoonful every morning in a little sugared water.

I regard as useless, and sometimes even injurious, the addition of mucilage, and especially of bitters as adopted by some practitioners. The latter, indeed, would occur as if expressly intended to disgust the patient.

The salts of potash and ammonia have a rather more marked taste, and it will be usually best to sweeten the solution according to the following formulæ:—

℞. Potass. hypophos., ℈jss.; aquæ distill., syrup simpli., āā., ℥iij.

A tablespoonful every day in half a glass of water.

℞. Ammon. hypophos., gr. xvj.; aquæ distill., syrup simpli., āā., ʒiij.
A tablespoonful daily in half a glass of water.

℞. Alum. hypophos., gr. vj.; aquæ distill., syrup com., āā., q. s.
M. fiant cochlear. magn., No. vj.—one daily.

The last mode of administering the hypophosphite of quinine is in pills, in doses of one to five grains daily.

℞. Quinæ hypoph., gr. xv.; F. pil. x.
One or two daily.

For children, too young to swallow pills, it may be given in solution as follows:—

℞. Quinine hypoph., gr. iij.; aq. dist., syrup com., āā., q. s.
M. fiant cochlear. magn., No. vj.—One daily.

The quinine salt may be exhibited associated with the hypophosphite of lime, as follows:—

℞. Calcis hypophos., gr. xv.; quinæ hypophos., gr. v.; syrup. com., aq. dist., āā., q. s.
M. fiant cochlear., No. x.—One daily.

I give the preceding formulæ in conformity with general custom, but I would again caution practitioners against a too common error, which I shall have to point out more fully hereafter—viz., that of imagining that a highly complex morbid state, like that of confirmed phthisis, is to be cured by the *routine* administration of any remedy, however powerful, or however *specific* in its action.—*Med. Circular*, *April* 9, 1862, *p.* 256.

132.—ON CERTAIN TUMOURS OF THE NECK.

By Andrew Melville M'Whinnie, Esq.

[Many affections of the throat requiring surgical interference are of imminent danger, and time, as in the most serious operations, is not allowed for deliberation. Action must be prompt, or the life to be saved, is lost. A practitioner of skill and intelligence will, with a penknife and a goose quill, successfully perform tracheotomy. There is no occasion that requires more judgment in the selection, and more promptitude in the performance, than that in which we are called upon to act for the relief of obstruction in the air-passages.]

Mr. Green, of the Bristol Infirmary, informs me that independently of eight operations for laryngeal affections, he has had occasion to operate seven times on account of foreign substances admitted through the glottis. In every instance in which he has been called upon to perform tracheotomy he has confined him

self to the division of the tracheal rings immediately below the cricoid cartilage. This testimony of so practical and experienced a surgeon is valuable, and strengthens very materially our position on the highly important point of practice, as to the choice of the spot for operation in most of these emergencies. The substances from which the patients were thus successfully relieved consisted of—two fish bones, one meat bone, one glass bead, one nutshell, one piece of hard suet, and a plum-stone.

Every one who has assisted at operations on the trachea low down in the neck must have witnessed, during the restlessness of the patient, and the convulsive movements of the parts, the difficulty of recovering, when once lost, the mesial line of the different structures through which the operator has to make his way, and particularly of regaining the exact interval between the sterno-thyroid muscles, at the bottom, perhaps, of a confined space, amidst a perpetual pool of blood, totally obscuring a view of the parts, more especially if the trachea should not have been properly secured with the hook. Equally important, too, is it that the operation should be commenced as accurately as possible in the middle line of the neck. One of the most experienced of Dublin surgeons, Mr. Porter, whilst engaged in an exceedingly difficult operation of tracheotomy, refers the trouble he describes principally to the circumstance of the first incision having been accidentally made a little to the right of the mesial line.

Among accidents that have occurred at the root of the neck are the following:—The exposure of the pleura, and even fatal perforation of that membrane. The thymus gland presenting an obstacle in young children, we sometimes find it rising up to meet the thyroid; a portion of it has been seen flapping in the wound. The anterior mediastinum has been the seat of fatal suppuration, from the incisions having been carried downwards near the upper border of the sternum; and in another case mischief of the same nature was caused by a canula introduced low down.

To the above difficulties occurring in this particular region are ofttimes added the risks and dangers arising out of the presence of neighbouring or overlying bloodvessels—from the irregular course or the abnormal distribution both of arteries and veins near the sternum; and however skilful and experienced the practitioner may be, it is of the utmost consequence that he should be acquainted with the possible existence of such varieties in the situation and arrangement of important vessels in the vicinity of his sphere of operations, thus inculcating caution, and influencing him in the choice, if permitted, of his mode of proceeding.

From amongst my collection of notes and sketches of irregular

arteries in the cervical region, the following instances are selected here as being of practical importance :—

A fifth or middle inferior thyroid artery, ascending in front of the trachea from the arteria innominata, gives off a branch to be distributed superficially upon each lateral lobe of the thyroid body. A similar artery, of large size, derived from the arch of the aorta direct, occupying the same situation. An inferior thyroid artery dipping into the posterior part of the left lobe of the thyroid body, having crossed the trachea in an oblique direction from the arteria innominata over the situation of tracheotomy below the isthmus.

In dissecting a fœtus I found a middle inferior thyroid artery in front of the trachea, sent off from a large ramus thyroideæ ascendens. A remarkable variety in the destination of the latter consisted in its ultimately taking the place of the occipital branch of the external carotid.

The unusual situation and course of the larger arterial trunks may render the hasty and incautious use of the scalpel, or any other instrument, over the lower part of the respiratory tube in the neck one of great peril, and will require the operator to be constantly on his guard. In infants, especially, as Sir Henry Marsh remarks, the trunk of the innominate often conceals the anterior surface of the trachea, some distance even above the thorax. In our museum are preserved two instances where the arteria innominata passes obliquely across the front of the trachea considerably above the sternum.—*Lancet, June* 7, 1862, *p.* 596.

133.—ALMOND FOOD AS A SUBSTITUTE FOR BREAD IN DIABETES.

By Dr. F. W. Pavy, Assistant Physician to Guy's Hospital.

[A chart was published in the Guy's Hospital Reports of last year, showing how intimately the extent of elimination of sugar is connected with the amount of starch or sugar that may happen to be ingested. A strictly animal regimen, indeed, theoretically contains all that is required for the support of life—for the growth and nutrition of our tissues and the maintenance of our temperature.]

There are very few articles of food derivable from the vegetable kingdom, but what contain either starch or sugar. Bread consists in great proportion of starch. Now, the loss of bread, on account of its forming so staple a commodity amongst us, is, of all vegetable products, that which is likely to be the most severely felt. Attention has been long since directed towards providing for the diabetic a substitute for bread which might be

consumed without prejudice to his complaint. Two preparations from wheat have been for some time known and used; but as these are not without their objections—strong objections in the eyes of many—it occurred to me that by looking further, a better substitute might possibly be found; and thus I was led to alight upon an article, of which it is my purpose here to speak, prepared from quite a different product of the vegetable kindom.

The food prepared from wheat for use in diabetes is made by separating, as far as possible, the objectionable principle—starch—from the bran and gluten which this grain contains. When wheat is ground, its different parts become differently disposed of, and are afterwards separated from each other during the process of dressing. The central white farinaceous part is finely reduced, and constitutes our flour. Besides starch, it contains the nitrogenised principle, gluten, which is used for one sort of food, and has to be procured in a separate form by washing. The covering of the wheat, in grinding, being of a hard tenacious nature, flies off in scales instead of being reduced to powder. But the covering is made up of two portions, an outer and an inner, differing essentially from each other. The inner portion of the integument—although we reject it from the food consumed by ourselves, choosing to have whiteness as a prominent quality of our bread—forms the richest part of the grain in nitrogenised or tissue-forming substance. Being more brittle or mealy than quite the outside husk it is reduced to smaller particles when the corn is ground, and is separated in dressing under the form of pollard. It is, then, quite the outside covering which constitutes the chief bulk of bran, the other material made use of as the basis of a substitute for bread in diabetes.

The gluten bread was introduced by Bouchardat, of Paris. For November, 1841, the Comptes Rendus de l'Académie des Sciences, contains a communication entitled Nouvelles recherches sur le diabète sucré ou glucosurie. In this, the administration of gluten bread is suggested, and cases are given to show its efficacy. Under its employment as a substitute for ordinary bread, the elimination of sugar undergoes a marked diminution. But, whether because it is impossible, or else too troublesome, to remove all the starch by the process of washing that is adopted for the extraction of the gluten in its preparation from flour, all the specimens of gluten food that I have tested have given a dark-blue coloration with iodine, indicative of starch. And in North's case, published in the Reports of last year, where a careful determination of the sugar eliminated was made, the gluten bread did not stand in so favourable a position, as regards its influence upon the urine, as bran biscuit.

Again, although some patients eat the gluten bread pretty well, yet others complain that they soon get tired of it, and that it seems not unlike a piece of caoutchouc after it has been introduced into the mouth and masticated a little while.

Dr. Prout, in the fifth edition of his work on Stomach and Renal Diseases, p. 44, thus refers to food prepared from bran for diabetes:—"For some time past, I have recommended as a substitute for bread in diabetes, a compound of bran, eggs, and milk, which if properly prepared is not unpalatable." He further states, that a patient to whom this bran bread was recommended took much pains to perfect the process of manufacture. Before employment, the bran was washed to separate as much as possible of the starch that remains adherent.

In these substitutes for bread, attention had been thus hitherto confined to the separation of the objectionable principle—starch—from the unprejudicial constituents (gluten, on the one hand, and lignin on the other) of the wheaten grain. It occurred to me to discard from consideration the *cerealia*, and look to the seeds that are easily to be procured at a moderate expense; where, instead of starch, oil exists. Of course, freedom from any strong taste, and the absence of any deleterious principle, formed absolutely essential conditions to be attended to. After passing in review many vegetable products, I alighted upon the sweet almond as the most promising for yielding what I was in search of. The hemp seed, in chemical constitution closely resembles the almond, and probably might produce a less expensive food; but, there being difficulties in the way of getting the kernel thoroughly free from its husk, has induced me to see first what could be done with the almond.

I learned that the almond could be procured in quantity at a moderate price. The Barbary and Sicilian almond, which are those used by confectioners, are sold, deprived of shell, at sevenpence, and even less per pound. From animals being fattened with the cake left as a residue after the extraction of the oil, I inferred that the almond might be fairly expected to contain nothing to prevent its prolonged use, or its being resorted to as a staple article of food. Common observation supplies evidence that the occasional use of this seed amongst ourselves is quite unattended with anything prejudicial.

The obvious means of removing objection to the use of the almond as an article of food, on the score of indigestibility, will be to have them throughly ground as a preliminary process to being presented in a form for consumption. When this has been accomplished I have grounds for believing that no inconvenience will be experienced from the want of facility of undergoing the accustomed disposal effected by the stomach.

The oily character of the almond is a desirable quality for it to possess, as an article of daily consumption in diabetes. The diabetic fails to be able to make use of one form of the respiratory or calorifacient element of food; but, with the other—the oleaginous—there exists no difficulty. Theoretically, in fact, the diabetic should be supplied pretty freely with fat; and, practically, it is found that such a supply is highly beneficial. Dr. Prout, in his work on Stomach and Renal Diseases, says, "We may observe here, that oleaginous matters often agree so remarkably well in diabetes, that some have gone so far as to propose them as remedies. When freely taken, they usually cause a flow of saliva, and thus diminish, the urgent thirst. When they agree, also, they give a sensation of satisfaction and support to the stomach, which other alimentary substances do not." It is probable that this last expression has been derived directly from the lips of a diabetic, as it so exactly accords in force with a statement made by one of my patients after he had been for three days partaking pretty largely of suet. The expression was that, "he liked the suet, and that it filled up the void which seemed to exist at the pit of the stomach, more than anything else he had yet taken."

Chemically speaking, then, it would seem that the almond, with its 54 per cent. of oil, in the place of the starch of the cerealia, is admirably adapted to supply to the diabetic a substitute for ordinary bread, which, from the nature of his complaint is prejudicial for him to consume. From the large proportion of the nitrogenous element which the almond also contains, viz., 24 per cent., it forms in addition a material richly endowed with nutritive properties. It is not quite free from objectionable constituents; containing, according to the analysis given, 6 per cent. of sugar, and 3 per cent. of gum. The sugar exists in the form of cane sugar; and, to become recognisable to the indication of a copper-test, must be converted, before testing, into grape-sugar, which is easily effected by boiling for a short time with a few drops of dilute sulphuric acid.

There is not a trace of starch to be discovered in the almond; and it happens that the sugar and gum are easily separated from the other constituents through the agency of water, thereby leaving a material as unexceptionable for the diabetic as animal food. With eggs, this may be made into an edible form, and Mr. Hill, of 60 and 61 Bishopgate Street, London, who has undertaken the manufacture of this food for me, is now supplying it in the shape of biscuit, rusk, and bread, within the range of price of the other substitutes for ordinary bread.

It must remain, of course, for time to decide the position this food is destined to occupy; but, with what experience I have had, I am justified in saying that I have every reason to be best

satisfied with its results, and good cause to hope, that the diabetic may find in this application of the almond, a not unpalatable accession to the limited list of articles at his command, that do not lead to an aggravation of the symptoms of his complaint. An important feature also is, that the patient is supplied in this substitute for ordinary bread, with that which he can wholly appropriate, and which his system is exactly in need of.—*Guy's Hospital Reports*, 1862, *p.* 293.

134.—ON THE TREATMENT OF DELIRIUM TREMENS.

By Dr. Thomas Laycock, Professor of the Practice of Medicine in the University of Edinburgh.

[Four years ago we published a most interesting paper on the pathology and treatment of delirium tremens by Dr. Laycock, (*Retrospect*, vol. xxxviii, p. 36). In that article he showed how successful the expectant and rational method of treatment is when compared with that in which opium and stimulants are freely administered. He then stated that the only fatal case of 28 treated during the previous four years, was one already treated by opium. Since that date, Dr. Laycock has had forty cases of varying degrees of severity under his care, and only one of these terminated fatally. The obvious conclusion from these results is, that the mortality from delirium tremens under a rational and expectant treatment, from which the free use of opiates and stimulants is excluded, is extremely small. There are, however, serious obstacles to the general adoption of the rational and safe method of treating delirium tremens, which are presented by the method itself. Although simple in principle and safe in practice, it is from various causes really difficult of application.]

When a practitioner is called to see a patient, he is generally found in a state which seems to demand immediately active and vigorous measures. He is alarmingly restless and excited, wandering here and there under the influence of groundless fears and apprehensions, and exciting the most lively fears and apprehensions in all around him. Perhaps he has not slept for several nights, and it has been necessary to watch with him, until wife, nurse, relatives, are all exhausted. If to all this be added attempts at suicide or homicide, or maniacal and furious delirium, we have a still more urgent case for prompt interference. Now, brandy or some other accustomed stimulant has been found to produce a temporary calm, and opium or its salts have been recommended on all sides as the "sheet-anchor" of the practitioner,—as the things which will surely calm all this

wild and distressing disturbance, and allay the fears and apprehensions, not of the patient only, but of his friends and the bystanders. These drugs are easily accessible and readily taken, and if not successful, the strait-waistcoat is available. On the other hand, the rational method demands that not only the practitioner, but the relatives and bystanders, shall look upon this strange and distressing turmoil with the calmness which rejects all mechanical means of coercion; shall prescribe for, nurse, and watch the sufferer as if he were in nothing worse than a troubled waking dream; and shall await with firm confidence the result of treatment which deliberately promises no immediate results. How far all concerned are defective in these requisites I need not say; but the causes of the defect are obvious. Firstly, the practitioner and friends believe the disease is of a very serious if not fatal import, and ought not, therefore, to be left to simple and apparently insufficient means. Secondly, the knowledge of the forms which are serious, and end either in death or in insanity, is not clearly set forth in books; or, in other words, prognosis is imperfect, and this because the natural course of the affection, in its various forms, is not known. Thirdly, the pathology of the disease participates in the obscurity and defects which attaches to all the class of mental disorders to which delirium tremens essentially belongs. Hence, while the diagnosis is imperfect, and the etiology obscure, the pathological anatomy is worse than defective—is, I humbly think, altogether erroneous. What then would be of the greatest value at the bedside? Two things chiefly,—a sound diagnosis and prognosis. These would enable us to decide, 1. What cases will run a natural course and terminate in health, and what are likely to end in death or chronic cerebral disease? 2. What means are available in each case to the quieting of the patient and his safe nursing and watching until health returns, and what for preventing the disorder terminating in chronic disease and death?

In the treatment of all cases alike there are certain points to be attended, which may be briefly noted. The patient is to be put to bed, his clothes taken away, and all friends dismissed. The hands and face must be washed; the room kept cool and fresh, but not cold. No mechanical restraint must be attempted, but the patient governed by a calm, gentle, yet firm and positive manner. Food must be offered of a quality and kind suited to the state of the stomach; at first it is often refused or abhorred (sitophobia), in which case it must be administered in a concentrated form in small quantities at intervals of one or two hours. If the breath smells of drink, it will be expedient to await the elimination of the poison, and nothing more than a purgative should be given medicinally, unless there is reason to

suspect an overdose, when a gentle emetic may be prescribed, and the stomach emptied. After the direct effects of the alcoholic or other drink have passed off, the practitioner will be able to determine the true characters of the case, or at least so far as they are modified by the intoxicant used. The patient should be examined carefully, as opportunity offers, for any complications; more especially the attention should be directed to the *head*, to determine whether any injuries have been inflicted on it recently, or previously; to the *lungs*, with reference to pneumonia, bronchitis, and acute congestive affections, and as to these physical diagnosis is essential, because the ordinary symptoms are often absent in consequence of the state of the brain; to the *heart* and *pulse;* to the state of the *liver;* and to the *kidneys* and *bladder*, as to retention of urine, albuminuria, &c. Inquiry should be made as to the habits of the patient, and the kind and amount of intoxicant taken; as to the previous treatment, especially with reference to opium and stimulants; and as to any predisposition to cerebral disorder. When the case has been thus examined as to its course and complications, and when the true character of the hallucinations, &c., is manifested, *independently of the direct influence of the intoxicant drinks* or *drugs*, as opium, or other nervines (and this is most important), the practitioner is in a position to establish his diagnosis and prognosis. Taking the character of the mental disorder as the starting point, it may be generally stated :—

1. When the mental disorder is of the opposite character to that already described and named as melancholia, that is to say, when the patient is gay in manner, or aggressive, or furious, and not timid, restless, and apprehensive; or when the illusions and hallucinations from the first are joyous and pleasing, and not distressing, gloomy, or monstrous, it is not a case of delirium tremens, and the prognosis is doubtful. When other causes of cerebral disorder can be assigned besides drunkenness, or there is a history of insanity, this diagnosis and prognosis is more certain. Dr. Gairdner's experience affords an instructive example of this kind of case.

"W. A., aged forty-two, admitted 7th January. This is a very interesting case, and a somewhat doubtful diagnosis at present. . . . . He was an habitual drinker on Saturday nights, but seldom got absolutely drunk. During the week before the New Year he took about a pint of ale or a glass of whisky every night, and we may easily suppose he did not quite abstain at other times, or after the New Year in particular. Still his wife believes that his present state is not owing to drink; and he himself connects it in some measure with the calamity of the fallen house in High-street on 24th November last, which, he

says, affected his mind deeply at the time. He is quite sensible that his mind is wrong. He has no tremors, and no spectral illusions. He is quite happy and cheerful, as is often the case in delirium tremens; but he has not, I think, the special appearance and manner of delirium tremens, nor the restless preoccupation of the mind, nor the unconsciousness of internal wants, nor even of his own condition, which is usual in that disease. His case rather resembles acute mania when subsiding. Here is another point in favour of the diagnosis. He was quite a furious maniac when admitted; and since this, though he has not had good sleep, he has had some sleep,—at all events he has become much less violent."—*Clinical Lectures*, p. 284.

In this case there was not the history and none of the pathognomonic characters of delirium tremens, but the opposite,—"He was raving mad when admitted, and required restraint." When the excitement remitted he had no tremors nor spectral illusions, and was quite happy and cheerful. It was not, therefore, a case of delirium tremens, but of mania, and would terminate therein. And such is the sequel of the history; for Dr. Gairdner, after premising that his doubts of the true character of the case were well-founded, adds, "In twenty-four hours he was quite mad again, in fact worse than ever; we had to put him into one of the padded rooms, and there he lay shouting, and swearing, and roaring all sorts of filthiness, without the slightest coherence."

2. When the hallucinations and delusions are characteristic in the beginning, the apprehensiveness and restlessness not strongly marked, and the character of the mental disturbance gradually changes into the aggressive, sullen, or maniacal kind, the prognosis is unfavourable; the case is likely to end in chronic disease. Case 8 in my last paper is an illustration. It is that of a tailor who came into the house of his own accord to get rid of "crowds of cats which assailed him in the streets in every way with claws and abusive language." The man had been severely beaten about the head, when drinking continuously, with a heavy wooden mallet. He gradually lapsed into mania; being first gay about his cats he became sullen and morose, demanding to know why he was detained; and after being under treatment five weeks, was dismissed as a candidate for admission into an asylum.

3. When the mental disorder is like that of acute mania, and the paroxysm has been excited by small doses of wine, spirits, or opium, in a person of very excitable habit, or with a predisposition to insanity, or who has previously experienced an injury to the head followed by a change in character, the prognosis is favourable; the case is likely to end in a few days under simple

treatment. This kind of case is a species of recurrent maniacal delirium excited by intoxicants. From other causes it is not uncommon in asylums in cases of chronic and remittent mania.

4. When furious delirium or maniacal excitement succeeds to a melancholic condition in a young patient, and it is ascertained that there has been entire want of sleep and abstinence from food, the prognosis is favourable, in the absence of cerebral predisposition, and in proportion to the youth of the patient. In cases of this kind the cerebral excitement is like that which occurs in starvation, and the intensity of the symptoms indicates the degree of imperfect nutrition of the brain and the blood which want of food and sleep greatly induces. Since, after the prime of life is passed, the nutrition is imperfect, other things being equal, in proportion as age advances, the age becomes an important element in prognosis; for the older the patient the greater the probable danger to the brain, and the less vigorous the restorative power of nature. Such may end in chronic mania or dementia.

5. When in a melancholic or typical case, with no serious complications, the illusions and hallucinations are as to perceptions of touch or of common sensation, especially of the skin of the trunk, the prognosis is favourable, and sleep may be expected to come on without an hypnotic. Of this class are all those illusions which point to the skin, as of lice, beetles, or cockroaches crawling over it. When, also, they refer to the limbs and deeper parts, and are such as show that they are due to neuralgiæ, the prognosis is favourable. If, however, the tactile and sensational illusions are referred to the head, as of persons boring into the skull, or pouring fluids, or putting things into the ear, the prognosis is more doubtful, and there is danger that the case may end in insanity.

6. When the illusions and hallucinations are of a gloomy and monstrous character, yet the patient has neither terror, apprehension, nor tremors, and the drinking bout has been preceded by symptoms of insanity, the prognosis is unfavourable; the case is likely to become chronic as developed insanity ending in dementia. This absence of fear or terror when the hallucinations are such as ought to excite emotion, is very characteristic of this class of cases.

7. When, after a drinking bout, or habitual intemperance, melancholia is developed, with auditory and ocular illusions, but unaccompanied by tremors, and when at the same time the feelings are involved, so that the delusions are unfounded suspicions, jealousies, and the like, and the patient is sullen, the prognosis is not favourable; the case is likely to terminate,

sooner or later, in aggressive or homicidal melancholia of a serious or incurable kind, according to the age and other conditions of the patient.

8. When, in the last-mentioned kind of case, there is a history of sexual excesses as well as of intemperance, and the corporeal illusions are of an indescribable kind, referred in a vague way to the joints, limbs, and viscera, and when auditory illusions of abusive voices are prominent, the prognosis is unfavourable; the case is likely to end in insanity, with the delusions fixed.

9. When the patient is melancholic, has been a hard drinker, and has experienced much gastric disorder, as loss of appetite, vomiting, and intense epigastric sinking,—if there be no important cerebral or visceral complication, the case will end favourably in a week, although the delirium and hallucinations may be of the most striking character.

10. When the patient has been a hard drinker, and there is a complication, yet not important in itself, as a slight gouty attack, hepatic congestion, gastritis, bronchitis, influenza, a limited pneumonia, a diarrhœa, and the like, the case will terminate favourably within fourteen days, even although the delirium may be more aggressive than melancholic. Here, however, a marked tendency to insanity, or previous attacks of mental disorder, will indicate caution.

11. The kind of intoxicant used may help the prognosis. When the type is profoundly melancholic, after the use of distilled drinks or opium, or when tremors, convulsive twitchings, and convulsive attacks follow on the use of bitter fermented drinks or "bitters," the prognosis is favourable. Cider seems to predispose to rheumatic complications. This and all the preceding statements have reference, it must be remembered, to the condition of the patient not less than twenty-four hours after he has ceased to take the intoxicant, and when, therefore, it does not directly modify the symptoms.

Medical Treatment.—Since a case of delirium tremens tends, independently of active remedies, to a favourable termination in from four to fourteen days (the cases I have treated have averaged six day's duration), the great indication of medicinal treatment is to favour this tendency, in *expectation* of early recovery. It is favoured by preventing as well as by helping. The natural impulse to interfere by the aid of narcotics and stimulants, or by mechanical means of restraint, has to be checked. This is best attained by adopting a plan of treatment which occupies and gives confidence to the attendants and friends, and at the same time calms the patient. The effects of

medicinal agents or drugs used to this end cannot be satisfactorily determined in many cases, because we cannot say, when calm and sleep come on, how much is due to the drug, how much to the diet and regimen, and how much to nature; so that all experience upon this point is somewhat doubtful. It is certain, however, that drugs have and do exercise an influence over the intensity of the symptoms, although they may not either cause sleep or shorten the duration of the disease. Of these, opium and its salts, tartar emetic, digitalis, chloroform, purgatives, alcoholic and other stimulants, are examples.

Alcoholic Stimulants.—These are available in all asthenic forms of delirium, however caused. They have been hitherto administered in the methystic form, chiefly on the theory that the sudden withholding of the habitual stimulant is the exciting cause of the delirium. The depression of the nervous system may be partly due to the want of the accustomed stimulus; but all experience shows that it is still more commonly due to morbid causes of a more general character, such as induce a feverish cold, a fit of indigestion, of the gout, or the like. Without such concauses, abstinence from habitual stimulants will not excite delirium tremens. The habitual drunkard distinguishes the depression which commonly succeeds to stimulation as "the blues;" "the horrors" is a different thing, and occurs when any indisposition induces loss of appetite, languor, disturbed sleep, and other symptoms of the class. It is the depression thus induced by this same morbific cause which constitutes the first stage or simplest form of delirium tremens. The intensity, therefore, is partly, at least, determined by the kind of indisposition or acute affection; and it is this we have to remedy. The indications, therefore, for the administration of alcoholic or habitual stimulants must be drawn from the then condition of the patient, just as in other diseases in which remedies of this class are useful. When food has not been taken for several days, and the hallucinations are of a frightful or distressing kind, and especially when the pulse is very quick and feeble, the first sound of the heart heard indistinctly, the tongue coated, œdematous, and flat, or indented at the edges, wine and brandy may be administered medicinally with advantage. Sometimes this state of prostration is due to the combined influence of drinks and opium or its salts, or to opium alone. In either case, alcoholic stimuli may be given. The following is an example:—

Delirium Tremens and Poisoning with Laudanum and Brandy. Delirium Suicidal. Tremors excessive: fourth or fifth attack. Duration about eleven days.—(Reported by Dr. JOHN SIMPSON). J. S., a broker, aged fifty-two, admitted into the Royal Infir-

mary on 20th May, 1862. It is his fourth or fifth attack of delirium tremens. He was intoxicated and under the influence of opium when admitted, his friends having given him brandy and laudanum that he might be quietly conveyed to the infirmary. Has been drinking brandy, porter, and ale for the last ten days, but no whisky, as he had made a promise to that effect when in the infirmary on a previous occasion. Sometimes he does not take drink for two years. His appetite is generally bad, and his bowels constipated; complexion dingy; countenance very anxious. Intoxication having passed off, he feels extreme remorse for his conduct. Nights wholly sleepless. His tremors are so violent as to shake the bed. Complains of a dull aching pain in the head and ringing in the ears. Tongue flat and moist, but coated; pupils contracted; conjunctivæ icteric; has hallucinations, when he shuts his eyes, of bears, and dogs, and animals he cannot describe which walk round his bed as if to attack him; also giants, who make faces at him and tease him.

Treatment.—A purgative enema; strong beef-tea, with or without small quantities of brandy, according to the state of the pulse. On 2nd June ordered nitrate of silver and muriate of morphia, as the stomach was exceedingly irritable. In the evening the pulse was 130 and weak, and prostration great. Ordered from four to six ounces of brandy, to be taken in small doses over twenty-four hours, either in water or strong beef-tea, as the stomach would bear.

Progress of the Case.—Little or no sleep for several days; the mental affection more and more developed. 31st May.—Fancied he saw the devil and a large black dog in the water-closet, and a sow in the ward, and that vermin were crawling over him. 1st June.—Same hallucinations; but also sees a number of people in the ward mocking him. 2nd June.—Tried, when in the water-closet, to commit suicide by strangulation, thinking he heard his wife say, "Go and hang thyself." Believes he has attended his own funeral, and called out to imaginary persons at the window that they would find his body at the infirmary. Complains that cockroaches and flies are going in and out of his ears. 3rd. June.—Last night endeavoured to throw himself out of bed. Fancies the lower end of the bed rises so that he rests on his head (vertigo), and to obviate the result, he advances his body forward. Affirms that his hands are charged with electric fluid, which dissolves anything put into them, and had in fact dissolved an old gentleman's watch; that children are attached to the top of the room, and that if he moves his eyes from them they will fall. Hears brass bands playing very beautiful music. 4th June.—Is constantly talking in a low tone about his business. Tremulousness still very great, and nights sleepless;

often attempts to get out of bed. During the last three days has had four ounces of brandy in the twenty-four hours, in small and frequent doses, and beef-tea freely.

5th June.—Slept for eight hours during the day, and the whole of the following night. 6th June.—Free from all hallucinations. 9th June.—Quite well and dismissed cured. Duration of treatment to sleep coming on, nine days.

This case is an example of the most severe and troublesome type of the delirium, and would, I think, have terminated fatally under the old infirmary method of laudanum and whisky.

Opium and Salts of Morphia.—The influence of these drugs is very various; in one class of cases having the most beneficial effect, in another increasing greatly the excitement and delirium. The like difference in effect is seen when given in cases of melancholia and mania, for which they have been freely prescribed. In some of these, as in some cases of delirium tremens, very large, and, under ordinary circumstances, poisonous doses have little effect. This tolerance of opium in certain forms of delirium tremens has probably led to its heroic administration in cases generally. A question has arisen, whether in those thus treated which terminate fatally, the death is due to the drug or the disease. Dr. Watson thinks not. He observes—

"When these patients die, . . . they are apt to die much in the same way as patients who are poisoned by opium; and if their friends are aware that we have been giving large and repeated doses of the drug, they sometimes have the charity to lay the death at our door."

Commenting on a fatal case in his own practice, he says—

"The manner of dying was just such as opium will produce, but then death by coma is also frequently the termination of delirium tremens. Effusion at length is apt to take place into the ventricles or into the meshes of the pia mater, and stupor comes on and the patient sinks. But in this instance I was certain that his death had nothing to do with the opium he had taken, for this reason, that so long a space of time had elapsed —nine hours—between his taking the opium and the coming on of the comatose symptoms."

Dr. Watson's case is so highly illustrative of the mode of death by opium in these cases that I quote it. The delirium of the patient was not of the melancholic type, or the hallucinations of a distressing character; he was a horse-keeper in a large way, and was busy with the execution of imaginary orders

and other business matters. He was fifty years old, had been a hard drinker, and had been very anxious about his business. Thus predisposed to cerebral disturbance—

"He had been attacked some days before with sore throat, common cynanche tonsillaris. The tonsils and fauces were so much swelled that his deglutition had been greatly impeded, and for four or five days he had scarcely been able to swallow anything. The night before I saw him he had become delirious, and then had been largely bled, and he was worse in the morning. His bowels had also been very much purged. I found him propped up in bed with a coronet of leeches round his head. . . . I recommended that the leeches should be removed from his head; that he should take immediately (for he could swallow now) two grains of opium, and afterwards twenty drops of laudanum every two or three hours until he fell asleep. . . . For some reason or other only one or two doses of the medicine was taken. . . . The patient did not sleep. At night, therefore, at ten o'clock, three grains of opium was administered. The result of this was, that he passed a quiet but a sleepless night. Perhaps (but I cannot be sure of that) if the opium had been persisted in, the case might have terminated otherwise. About eight o'clock the next morning I was summoned to him in a great hurry; when I got there he was dying, perfectly comatose, breathing stertorously, with blue lips and contracted pupils. He had appeared so much better at seven, that he was, for the first time, left alone for a quarter of an hour, and when they went back to him he was changed in the manner described."—*Lectures on the Practice of Physic*, vol. i. 4th edit., p. 416.

This mode of accession of fatal or serious cerebral lesion is seen in other diseases. "A lightening before death" is seen in dementia,—a feeling of wellbeing before apoplexy, of cheerfulness before a paroxysm of melancholia. When this patient appeared to be so much better he was beginning to die, probably from a change in the cerebral circulation, which rapidly passed into effusion from the capillaries—acute œdema, in short. Now, this condition, I am satisfied, may be induced by opium. Dr. Graves' opinion, therefore, expresses I think more nearly the effects of large doses than Dr. Watson's, when he says—

"Opium, if given in the beginning, will increase the congestion and bring on sub-arachnoid effusion. I treated a case of delirium tremens in this way too boldly, and the man died with sub-arachnoid effusion. It was a lesson to me, and I advise you to profit by my experience."—*Clinical Lectures*, vol. i, p. 530.

Dr. Watson attributes the effusion to the disease, and says, death frequently occurs in this way; but then, his exclusion of the opium from causation is founded on a deduction from the

experience of its effect on healthy persons. This is not, however, the kernel of the question; we want to know what are the effects of opium when tolerated in large doses in morbid states of the encephalon, such as are induced by habitual drunkenness, or by the administration of large doses of alcoholic drinks. That there is a delayed action of the opium, such as Dr. Watson's case exhibited, in so far as we may judge from the manifestation of its poisonous effects in these cases, is proved by the summary of Dr. Christison's experience as to the effects of opium, which Dr. Watson gives in support of his doctrine.

"Dr. Christison, in his elaborate and valuable work on Toxicology, states it as the result of extensive inquiry into this subject, that when opium has been swallowed in a poisonous dose, it always begins to act as a poison within an hour; that very rarely, indeed, has its specific operation been postponed much beyond the hour, except, occasionally, when the person taking it was intoxicated at the time. In one remarkable instance a drunken man took two ounces of laudanum, and no material stupor followed for five hours. I guess that I incurred the reproach of recommending a fatal plan of treatment in the particular case I have now related; but I am quite satisfied that the opium was innocent of the patient's death."—*Lectures*, 4th edit., vol. i, p. 416-17.

My own conclusions on this point are, that the combination of alcoholic drinks with opium tends to render the patient more tolerant of the drug; that in some drunkards its operation is so much delayed, that when given in repeated doses, there is a cumulative effect produced; that it is never a wholly safe practice to administer it for the express purpose of procuring sleep, nor as a stimulant in more than the ordinary doses; and that it is always prudent to watch the effect of the remedy on the pupils in exciting contraction. How far various other states of the encephalon may antagonize the drug, and for how long, we never perhaps can say, but that there are such states variously induced is one of the most certain things in physic. We have it in cases of both mania and melancholia, in certain kinds of neuralgia, in traumatic tetanus; and it is believed that it may be induced by henbane, belladonna, and other drugs. And it is to be remembered that the antagonizing state may be so transient as to leave the brain exposed to the full action of the poison before it is eliminated,—nay, by its action on other viscera may delay the elimination. I humbly think that all the facts are in favour of the conclusion, that in a case like that detailed by Dr. Watson, the drug is lethal.

Be this as it may, such a case as Dr. Watson details, if treated according to the expectant method, would not have been treated

by opium at all. It was a case complicated with heroic treatment as well as by previous hard drinking and anxiety; but the delirium was not of a kind to indicate serious encephalic lesion, with a tendency to insanity or death. In an acute case of cynanche tonsillaris like this, even if the delirium had been much more distressing and more characteristically methystic, we might fairly *expect* the patient to recover within seven to fourteen days, rather than to die, and all that we need aim at would be such *expectant* treatment as the case required; in this particular example, nutrient enemata with wine so long as the patient was unable to swallow, then concentrated food by the mouth with wine or small doses of brandy. When the inflammation is of a more sthenic type, tartar emetic may be administered in combination with small doses of laudanum.

Camphor.—It is not easy to determine beforehand when opium or its salts serve only to induce greater prostration and distress; most generally, however, the patient is of a nervous habit with a florid complexion, or at least has had, and is of a neuro-vascular diathesis. In cases of this kind where the exhaustion is great and morphia inadmissible, camphor proves sometimes useful in from two to three grains every three hours, or the carbonate of ammonia combined with camphor and henbane.

Mental Hypnotics are singularly successful in those cases in which there is a morbid apprehension as to sleepless nights, and a hypochondriacal anxiety for sleep. It is often the morbid feeling alone which prevents sleep: this is proved by the circumstance, as repeatedly witnessed in my practice, that any simple remedy administered to the patient so as to impress him with the conviction that it will cause sleep, is followed by sleep; and sometimes, when convalescence is approaching, by as prolonged a sleep as if a powerful narcotic had been taken. In one case of this kind the long sleep which followed upon a placebo excited alarm.

Tartar Emetic.—This drug, like opium, has been administered in large doses in delirium tremens; the effect of which, I venture to say, can only be to excite gastric or gastro-enteric inflammation. Now, it is probable, counter-irritation of the gastro-intestinal mucous membrane is very beneficial in some cerebral affections. Perhaps calomel sometimes acts in this way in acute hydrocephalus; but in the majority of cases of delirium tremens this result is attained by a simple purgative, and care should be taken to avoid irritating the already irritated stomach. Tartar emetic, therefore, should be administered in solution, and in doses not exceeding 30 minims of the liquor of the Pharmacopœia. It is chiefly indicated in those cases in which there is some inflammatory complication, and especially pneu-

monia, however trifling. It is advantageous, too, at an early period in those in which the whole character of the disease is more sthenic, and the mental disorder more nearly approaches insanity or mania. In these the patient is less apprehensive and timid; often loquacious, suspicious, and inclined to be aggressive upon slight provocation; he has notional delusions more predominantly than hallucinations of the senses; his nights are disturbed, but not wholly sleepless; nor has he tremors of importance. His appetite comparatively with the asthenic form is little impaired; his tongue but little coated, and when projected rather pointed and firm, than flat, flabby, and tremulous. His skin, too, is rather hot, or at least natural, than cool and moist; and the pulse is less round, undulating, and quick. Cases of this kind are intolerant of stimulants and opium even in small doses, these being apt to change a "cantankerous" kind of delirium into a raving or destructive sort; whereas 20 to 30 minims of tartar emetic liquor, given every three or four hours, calm, or at least do not aggravate. When, however, there are symptoms of depression, especially in a young person, and the history is that of causes of exhaustion, laudanum in 5 to 15 minim doses is a useful stimulant, in combination with 15 to 20 minims of the liquor. This has long been found useful in ordinary maniacal delirium thus arising.

Emetics, Purgatives, and Stomachics.—Methods of treatment by purgatives, quinine, and tonics have been recommended. The patient before coming under treatment has usually tried remedies of this class, especially *bitter* drugs, either as bitter tinctures, "the bitters" of the dram-shop, or in bitter beers. The effect of these is to modify the symptoms, and especially to induce muscular twitchings, tremors, and even slight convulsive attacks. Very often in such there has been a total loss of appetite, and no food has been taken for several days. In some, food is vomited, in others, if retained, it causes pain, because of the state of the mucous membrane of the stomach. This is often, in fact, congested and inflamed. Hence the dietetic and medicinal treatment of gastritis is indicated; constipation and hepatic congestion are not uncommon complications, and indicate a suitable aperient. Podophyllin, calomel, colocynth and henbane, castor oil, salts and senna, and Gregory's powder, were the ordinary remedies of this kind used in the infirmary. Of the new drug as a bilious purgative I can speak favourably. Podophyllin was prescribed in several cases in combination with cannabis indica or henbane, with good effect. The following formulæ were used:—℞. Podophylli, gr. ij.; pulv. cinnamoni co., extract hyoscami, aa ℈.; mucil., q.s. The mass to be made into four pills, of which one to be taken every six hours until

the bowels were moved. In another formula, gr. viij. of powdered ginger, and of extract of cannabis indica were combined with gr. iij. of podophyllin, and made into six pills. The purgatives, of whatever kind, were always given at the commencement of the treatment and not afterwards. Emetics were never tried, and were never indicated except in cases of drunkenness. Stomachics were prescribed in a few cases at the termination, when convalescence was established, but were rarely needed.

Digitalis and Chloroform.—There is evidence of the calming effect of digitalis, but it is of the vaguest kind. There is no indication of the class of cases in which it may be safely prescribed, nor are we clearly informed whether in the cases reported there was not renal or cardiac disease, or the complication of drunkenness or of narcotization. I have seen it tried in one case, in which, in consultation with a medical friend, it was resolved to try a half-ounce dose of the tincture. The patient had had a drinking bout, and suddenly became aggressive and destructive, tearing, pulling down and burning, and striking and throwing things at the attendants. There was no loquacity: the patient rarely spoke, but sat in bed, rolling up the bedclothes, tearing off his clothing, and throwing food and drink in the faces of those who offered it. This he did with his dose of tincture of digitalis, after drinking one-half of it. The case was one in which the expectant treatment was thereupon tried with entire success,—reason being restored and convalescence established within the week. Chloroform has been administered in very violent cases with advantage; when exhaustion is likely to come on from the constant raving and struggles of the patient, it may save life by saving strength. Such, however, are rare, and are more frequently met with as the result of heroic treatment than in the ordinary course of the disease.

There were two or three cases of puerperal mania (so called) admitted into the Infirmary and Milnholm Asylum during the summer, and were treated on the same principles as the cases of delirium tremens. One of these brought to the Infirmary had fallen into a raving delirium after taking morphia. They were, in truth, acute cerebral affections, of which parturition, or the puerperal state, was the exciting cause, and recovered within a short period. How far albuminuria is a cause or an effect of the morbid state of the encaphalon, in this class of cases, has yet to be determined, although it is commonly assumed to be the cause. In none of the cases I have treated was there any important renal complication, nor was albuminuria detected, although the urine was carefully examined. Renal disease, especially albuminuria, is amongst the rarer complications of insanity.—*Edinburgh Medical Journal, Nov.* 1862, *p.* 418.

135.—ON UTERINE HÆMATOCELE: EXPERIENCE IN THE ROYAL INFIRMARY OF EDINBURGH.

By Dr. J. Matthews Duncan, Clinical Lecturer on the Diseases of Women.

It is an extraordinary and inexplicable fact, that uterine hæmatocele—a disease not of very great rarity, frequently forming tumours of enormous bulk—should have almost completely escaped the attention even of special practitioners in the diseases of women until about twelve years ago. Text-books and teachers were all silent on this important disease, till the clinical lessons of M. Nelaton on the subject were published. Now, the disease will never be forgotten. It is, indeed, easily identified; and out of several cases which I have seen, I shall in this article relate six which have come under my care in the Royal Infirmary during the last eighteen months. To the reader it will be evident that these cases have all similar symptoms; but that the physical characters are very different in different examples; so different, indeed, as to preclude the supposition that the effusion of blood has taken place in all of them in the same anatomical situation and conditions.

Although the disease is easily identified, and its general characters are well known, many important points in its pathology are still unsettled. It appears to me that the chief of these regard the difficult questions of its various origins and of its various situations. That in both of these matters there is no uniform law, but difference in different cases, I am convinced. To explain its origin, every possible source of bleeding in the neighbourhood of the affected parts has on different occasions been invoked; and many have been substantiated by post-mortem investigation. In regard to its anatomical site, two principal theories are enunciated. The first, that the blood is as a rule effused into the peritoneal cavity, is held by most continental pathologists, and has been defended at very great length by M. Bernutz, in his clinical work on the diseases of women. It has also the important support of a great majority of the recorded careful post-mortem examinations. The second theory, that the blood is effused into the cellular tissue of the higher parts of the pelvis, is entertained by several physicians in this country, but chiefly on theoretical grounds, for post-mortem observations confirmatory of this view are unfortunately few in number. It has been attempted to connect some points in the progress and history of the disease with the anatomical relations of different portions of the pelvic fascia; but hitherto this attempt has been only in words, or in descriptions having a confused hypothesis for their basis. The question is one which morbid anatomy alone can settle, and it is to be ardently desired that autopsies

bearing on this point should be recorded. I do not say autopsies only of women dying of this disease, for it may well happen that the greater fatality of the intra-peritoneal form may lead to an erroneous opinion of its frequency and importance. It is natural to suppose that the extraperitoneal form of the disease should seldom cause death, and the opportunity of examining it after death be very seldom met with; but this rarity of the extraperitoneal form in autopsies is not a conclusive argument for the rarity of its occurrence when compared with that of the probably more fatal intraperitoneal affection. Pathologists, must, therefore, anxiously wait for autopsies in cases of death from any cause, in women who have had uterine hæmatocele complicating the disease producing the fatal result.

That intraperitoneal hæmatocele often occurs is proved by numerous post-mortem examinations, and it is as natural to expect its occasional occurrence as it is easy to find in various sources of the hemorrhage a satisfactory explanation of it.

The occurrence of extraperitoneal hæmatocele has been but seldom verified by post-mortem observation. But it has always appeared to me to be probably a common form of the disease. The remote analogies of cephalhæmatoma, of pulmonary, splenic, and placental apoplexies easily suggest themselves. It is more to the point to recall to mind the well-known thrombus of the vulva, and the occurrence of similar effusions beneath the walls of the vagina, which last I have several times seen in post-mortem examinations of women dying in childbed. It is, besides, ascertained that sanguineous effusions do sometimes take place between the two layers of peritoneum forming the broad ligaments, and I have, in pregnant pigs made the subject of vivisection, seen extensive effusions of the same nature in a corresponding situation. Further, it has appeared to me difficult, if not impossible, to expect the complete, or nearly complete, return of the mobility of the uterus, and of the softness of the roof of the vagina, if the effusion be intraperitoneal, the blood enclosed by adhesions of the viscera, and the disease cured by evacuation of the sac, its suppuration and gradual collapse. Pregnancy even has been prosperously completed in women who have previously suffered from uterine hæmatocele. This returning mobility and general state of health I have observed in a retro-uterine hæmatocele of great extent to be presently recorded. Again, in what I call the characteristic retro-uterine hæmatocele there is strong and far advancing pressure downwards of the effused blood, great distension apparently of the recto-vaginal septum, so close approximation of the tumour to the perineum, and so great elevation of the uterus, that it is difficult to suppose that the advancing mass is pushing the peritoneum before it. Moreover, in large hæmatoceles, there is

sometimes little tenderness; and, what is still more important, the tumour can be felt projecting upwards into the abdomen, very like the liver projecting downwards in cases of hepatic enlargement, though with a more rounded margin (as in case fourth), and manipulation detects as little feeling of adhesion of the bowels around the hæmatocele in the one case, as to the liver in the other; and, in the latter, we often ascertain that no adhesions exist.

For the final settlement of this interesting subject, we must be content to wait till the accumulation of careful observations, both before and after death, throws light upon it. A similar difficulty involves the pathology of pelvic abscess, or pelvic peritonitis; one set of observers, with M. Nonat, defending the extraperitoneal site of these indurations and abscesses; another set of observers, with M. Bernutz, defending the doctrine of their intraperitoneal situation. As in the case of hæmatocele, it is probable that truth is not confined to either side. And, again, as in the case of hæmatocele, it is desirable to be able during life to diagnose not only the inflammation or the bloody effusion, but also their anatomical relations.

In the cases to be recorded, the exciting causes of the disease, so far as could be made out, were coitus during menstruation, suppression of the menses by cold, and irregularity of the menses. In two cases in which this last exciting cause was traced, the women supposed they were pregnant, and the author was so far inclined to acquiesce, as to suspect the co-existence of extra-uterine pregnancy, and watch for any evidence in support of it that might be gained from the discharges, but nothing appeared to corroborate the supposition.

The state of the effused blood varies in different cases. In the fourth case now recorded it was felt *in situ* by the finger passed through an artificial opening, and found to be in the condition of moderately firm clot, but at the lowest part of the same tumour was collected a small quantity of bloody fluid of a syrupy consistence, and with an odour of faded leaves. In case third, the condition of the blood was certainly the same in every respect. In many cases the tumour is so small that it cannot be decided whether fluctuation is present or not; but in these two cases the abdominal tumour was large and could be handled, and no fluctuation was to be felt, and the same was true of case second, as hereafter reported. The absence of fluctuation is explained by the solid condition of the blood. In cases third and fourth a little fluid could be felt in the lower parts, which projected deeply into the vagina.

In case first, the tumour, of enormous size, presented most indistinct fluctuation when first examined, but subsequently this sign could be easily made out. The absence of fluctuation

in this case may be partly explained by the great tension of the cyst, but was probably also due to the imperfectly fluid condition of the contained blood. Before this was evacuated the fluctuation had become distinct, and, in correspondence with this change, the blood drawn off was of a syrup-like consistence, and had the peculiar odour of faded and slightly decomposing flowers. In all of the cases the blood became of a dark-brown colour, and had a grumous or coffee-ground appearance, after the cyst had been open for a short time, and simultaneously it acquired an intense fetor. In none of the cases here recorded, except that of Mrs. H., could any pus be detected by the naked eye. In the exceptional case, the surface of the collected fluid glistened as if with cholesterine scales, and had an iridescence, in so far as it presented at parts a shifting greenish-brown tinge. Under the microscope the fluid evacuated in every case showed abundant blood-corpuscles in every stage of destruction, still greater abundance of large, and not very uniform, pus-like cells, with occasional crystals of the forms of cholesterine and of tyrosine.

It is natural to expect, that as the blood-clots slowly break down and form a syrupy fluid, pus cells from the walls of the cyst should be freely mixed with it. In all the cases, as the blood became completely evacuated, and while the containing cyst became contracted, pus at last became evidently mixed with the grumous discharge until it supplanted it altogether. This purulent discharge, unmixed with decomposing blood, had not a fetid odour. In case third, even though the hæmatocele was very large, this purulent discharge was only of slight extent, the cyst evidently contracting closely on the gradually departing blood.

I may here remark that I have operated on cases of large peri-uterine hæmatocele, in which blood and pus were evidently commixed. But in these cases the disease was of long standing. I recall to mind one apposite and very interesting case of a lady who came under my care some years ago, whose disease had been diagnosed in London as a fibrous tumour, and in Edinburgh erroneously likewise, and from whom I drew off by Pouteau's trocar, at successive operations, nearly two pints of fetid pus mixed with old brown blood, one half being evacuated by puncturing per vaginam a tumour at the brim of the pelvis and on the right side of the os uteri, the other half by a like operation on the left side. The poor sufferer was only deprived of the deceitful swellings occupying the hypogastric regions: her painful symptoms, especially severe chronic cystitis, were but little relieved. I mention this case to illustrate the gradual change of an old hæmatocele into an abscess, or how a hæmatocele may suppurate and end in a kind of pelvic abscess. An

analogous change often takes place in ecchymosis of the vulva and vagina.

I now proceed to detail six cases of this interesting disease, and I divide them into three classes: 1. Uterine; 2. Retro-uterine; 3. Peri-uterine. I attach little importance to this division, but it is founded on well-marked differences in the physical charaters of the cases to be recorded.

Uterine Hæmatocele.—The following case is an example of an enormous hæmatocele, its size being proved by the amount of blood evacuated from it, besides by the physical examination. It is the only one of the six cases here related, where physical examination revealed nothing to lead me to stubbornly disbelieve its intraperitoneal site. Indeed, I think it was probably intraperitoneal. I was at one time inclined to think that its bulk strongly argued in favour of its occupying a portion of the peritoneal cavity, but the observation of a case of very large false aneurism in the brim of the pelvis and neighbouring iliac region dispelled this notion. This case was successfully treated, by Mr. Syme, and I witnessed the removal of the clotted contents of the sac in the course of the operation, in which the peritoneum was left intact.

Case 1.—Mrs. M., aged twenty-eight, sterile, had till recently enjoyed good health. About June 1861, she had a very painful menstrual period. In the beginning of October she was menstruating, and on the second day of the flow she felt a painful coldness while sitting in the open air on a stone. On the following day she was suddenly taken with a violent indescribable abdominal pain and swooned. She remained faint and insensible for two days, and was considered to be dying. When consciousness returned she had great pain in the abdomen, and could feel in the left side of the belly a swelling, which gradually increased. Her bowels were very constipated; she had some sickness and vomiting, but no dysuria.

On her admission on the 9th November into the Royal Infirmary, she was very pale and anæmic, had a hot skin, a foul tongue, and her pulse was 130. The abdomen was greatly distended with flatulence, so that the large tumour in it could only be very indistinctly felt. This tumour occupied the left side of the belly, and extended towards the right also. The line of absolute dulness extended from above the level of the navel on the left downwards towards the right iliac region. The tumour was nearly solid, elastic, moderately tender, but the seat of much pain and feeling of distension even to bursting. Examination per vaginam revealed nothing but some fixation of the uterus, which was somewhat elevated and surrounded by unnaturally solid tissues. The size of the tumour led to its being

diagnosed as an ovarian cyst, into which hemorrhage had taken place; but its subsequent history removed any difficulty as to the nature of the case.

In the course of a few days the sign of fluctuation in the tumour became gradually perceptible, and it became apparently much larger from diminution of the flatulent distension. The woman's sufferings did not diminish. On the 15th November I tapped the abdomen in the ordinary way, about an inch and a half below the umbilicus, and drew off 115 ounces of syrupy blood, showing, under the microscope, abundant pyoid corpuscles. This was followed by almost complete relief of her sufferings and by improvement of her general condition. She continued well upon the whole, only suffering from constipation, flatulence, and occasional vomiting till early in December. At this time her former symptoms returned to a slight extent. But on the 10th of December the tapping puncture spontaneously reopened, very large quantities of bloody fluid were discharged, and she became, according to her own account, quite well. Frequent flowing discharges of many ounces of fluid continued to take place. The cyst rapidly and steadily diminished in extent, so as not to equal the bulk of a small fœtal head when last felt. The fluid discharged became gradually more and more purulent. The poor woman was so well that she could not be induced to stay in the hospital, and went away at the end of December.

The following case closely resembles the former in its physical or anatomical characters, and is classed with it. The hæmatocele was not nearly of so great size as that of the first case, and, when the belly became soft and could be handled, the facility with which the parietes could be depressed above the tumour was felt to be hostile to the supposition of its upper wall being formed of coherent intestines. This depressibility of the abdominal wall around the upper margin of the tumour was not present in the first case.

Case 2.—M. T., aged twenty-one, was unmarried, but had cohabited with a young man for a year before her illness began. In July and August she had menstruated a week prematurely, and for some months past the discharge had been scanty. On September 1st, sexual connexion during a menstrual period caused her much pain, but she had no immediate further suffering. After this occurrence she again (September 11) had a painful and injurious coitus. On the following day she had much abdominal pain, and consulted a medical man. For two days further she was able to move about, but was afterwards confined to bed, the pain becoming aggravated. A week after the last-mentioned painful coitus, she had a new and most

intense pain above the pubis and in the left iliac region, and now for the first time, felt a swelling in that situation. She now came to Edinburgh, and was admitted on September 21st into the Royal Infirmary. She complained of great pain and tenderness in the abdomen, with frequent bilious vomiting and diarrhœa. Pulse rapid, tongue coated, skin hot. The chief seat of pain and tenderness was a hard, solid tumour, occupying the whole left iliac region, rising here and on the mesial line about an inch above the umbilicus, its upper margin sloping downwards, from a little to the right of the navel, towards the anterior inferior spine of the right ilium. The uterus was fixed, its cavity three and a half inches long, its cervix small and hard. The uterus was elevated and displaced to the left of the mesial line; and although the mass of the tumour was on the left side of the belly, the hardness, which occupied the whole posterior three-fourths of the brim of the pelvis, was most distinct and easily reached by the finger on the right side. As in the former case, there was no recto-vaginal bulging. In the anterior parts of the brim of the pelvis there was no induration; and manipulation of this region, externally and internally at once, showed that the tissues were soft and compressible. Menstruation began on the day of admission and ceased on September 25th. The discharge was red and not fetid. She again began to have a menstrual-like discharge on September 28th, and it lasted for four days. The discharge was bright and not fetid, and in moderate quantity. On September 28th she began to feel decidedly better in every respect, and the tumour began to decrease rapidly. On the 2nd of October the upper margin of the tumour was an inch below the umbilicus, and except the somewhat tender hypogastrium, all painful symptoms had gone. She even wished to get out of bed. No bloody discharge from the tumour took place in any way. From this time the tumour went on steadily decreasing. The general health also was quite restored. On the 17th October there was resonance over the whole hypogastrium, but hardness could still be easily felt on pressing the region of the brim of the pelvis. On examination per vaginam the uterus was found in its natural situation, reduced in size, and slightly mobile, the whole remains of the bloody tumour moving consentaneously with it.

Retro-Uterine Hæmatocele.—The two cases to be related under this head so closely resemble one another in every respect, that they cannot but be classed together. The position of the tumour behind and below the uterus, the displacement of that organ upwards and forwards, justify the term retro-uterine. This term has been improperly applied by many authors to uterine hæmatoceles generally. All uterine hæmatoceles are

not retro-uterine. The two first cases recorded in this paper are not properly retro-uterine, at least not in the sense of the tumour having the same relations to the womb as in the third and fourth cases. I was at one time disposed to ascribe the characteristic retro-uterine position to the greatness of the size of the tumour in such cases; but the study of the first case here recorded has dispelled this notion as untenable. In that case, if size or extent of effusion produced distension of the recto-vaginal space, then such distension certainly ought to have been present, for the hæmatocele was enormous and the belly was painfully distended.

Retro-uterine hæmatocele is one of the best characterized forms of the disease; and in the records of gynæcology many cases are to be met with almost identical with those now to be reported. In spite of the evidence of autopsies proving intra-peritoneal situation in some retro-uterine cases, I have found it difficult at the bedside to adopt this view of the site of the hemorrhage in my cases third and fourth.

Case 3.—Mrs. S., aged thirty-one, had been married seven years, and had born three children in natural labours. Her youngest child was born on November 27th, 1860, and was weaned when fourteen months old. She had always menstruated regularly; and in January 1861, on weaning her baby, the catamenia, as usual with her, made their appearance. In February there was no monthly discharge, and she thought she was pregnant. Again, in March no menstruation took place. In the beginning of April she was seized with violent bearing-down pain, as if of labour; it soon ceased, but after some hours returned again, and bloody discharge commenced. The pains and discharge, varying at different times, lasted for three weeks. Her strength was much reduced. In the beginning of May her medical attendant discovered a tumour in the right inguinal region, where her pain had been very great. This pain was greatly aggravated during the action of laxative medicine, but relieved after the evacuation of the bowels. In the second week of June a brown viscid discharge began to come away, affording her relief. In the end of June this discharge ceased, and a purulent leucorrhœa took its place. When the disease began she had incessant calls to urinate, and although she became better in this respect, she could not retain her urine above two hours.

She now (July 1st,) came under my care in the Royal Infirmary. She was anæmic, weak, and her pulse was accelerated; but in her general condition there was nothing farther remarkable.

A large tumour, solid, immovable, and of moderate or liver-like consistence, occupied the right and middle hypogastric re-

gions. It was bilobate in its outline superiorly; the right lobe extending a little above the level of the umbilicus and occupying the right side of the belly; the other lobe, continuous with the former, feeling harder from the body of the uterus forming its anterior surface, occupying the middle hypogastric region and rising to nearly the level of the umbilicus. The true pelvis was completely occupied by a recto-vaginal tumour evidently containing fluid. The finger could be pressed between this tumour and the pubic symphisis, and, on its point reaching above the symphisis, it came into contact with the os uteri, which presented no peculiarity in other respects. A probe passed into the uterus showed that that organ lay in front of the tumour, and inclined towards the right side of the mesial line, and that its cavity was enlarged to a length of nearly four inches.

On the 4th of July I punctured the tumour, per vaginam, with a Pouteau's trocar, and drew off six ounces of viscid bloody fluid. After the operation a grumous bloody fluid continued to be discharged, and the tumour in the abdomen immediately began to descend, the patient at the same time experiencing great relief. The discharge came away in large quantities when she went to stool. Twelve hours after the operation, fetor of the discharge began, and it appeared to be the cause of considerable febrile excitement. On the 11th of July the uterus again occupied its natural situation, and the length of its cavity scarcely exceeded three inches. The hypogastric tumour had disappeared, and only a hardness could be felt in the brim of the pelvis, where the tumour had been. On the 15th, external manipulation could discover nothing. The uterus, examined per vaginam, was of nearly its natural dimensions, but fixed in the midst of a hard mass occupying the brim of the pelvis, and densest at the right side. After this time the discharge gradually and soon ceased. As it disappeared, only a slight leucorrhœa supplanted it. Menstruation soon returned and recurred naturally; but it was not till after the lapse of six months that the uterus became mobile, and the parts adjoining the roof of the vagina soft and easily displaced by the examining finger.

Case 4.—Mrs. R., æt. twenty-five, had been married seven and a-half years, had enjoyed good health, and menstruated regularly. Six months after marriage she had a miscarriage, but had not been again pregnant, although when this disease began, she thought herself in that condition, and supposed she had an abortion on the 30th of December, 1861. But of this opinion she had no satisfactory evidence.

She menstruated in the beginning of October, 1861, for the last time, and therefore had all the symptoms of pregnancy which she had experienced on a former occasion. In November

she began to have pains in the belly, costiveness, and pain and difficulty in making water. In December, she had much cramp-like pain in the stomach, and frequent vomiting. In the end of the same month she had for several days a copious white discharge. On the 30th she supposed she had a miscarriage; and then a supposed lochial bloody discharge began, and continued for three weeks. Six days after the supposed miscarriage, she got up, and a pain, or dull soreness, in her left inguinal region, which had existed since the miscarriage, became, on the same evening, greatly aggravated. Presently a tumour appeared in the same situation, and had attained a large size before the middle of January, 1862; but about that time great flatulent distension came on, and prevented any one from feeling its limits. The pain and difficulty in urination had disappeared gradually.

She was now admitted into the Royal Infirmary, under the care of Dr. Warburton Begbie. Means were successfully used to remove the flatulent distension; and, the general nature of the case thereby becoming evident, Dr. Begbie had her transferred to my ward.

Examination on the 30th January, 1862, revealed the following conditions:—The entire lower belly was occupied by a solid immovable tumour, larger and more prominent on the left than on the right side, rising at either side an inch above the anterior superior spine of the ilium, and in the middle to near the level of the umbilicus. The tumour felt like the liver; its upper margin was rounded, and could be plainly felt, the wall of the belly being easily depressible,—the impression to the observer being quite hostile to the idea of the bowels being coherent and forming the wall of the tumour. The tenderness was not considerable. On examination per vaginam the finger discovered conditions identical with those described in the preceding case; only the projecting tumour was less globular and more diffused. The uterine cavity was $3\frac{1}{4}$ inches long, and this organ lay in front of the tumour, and to the right of the mesial line.

She had an extremely bloodless appearance, much undefined suffering in the belly, and was very weak, but no remarkable constitutional symptoms were present.

On 31st January, I made, with a guarded bistoury, an incision almost an inch in length in the vaginal tumour, and a few ounces of viscid bloody fluid escaped. The finger passed through the artificial opening detected the repletion of the tumour with soft blood-clots. A probe passed through the same aperture could easily be made to reach any part of the tumour; and its point could be felt through the abdominal parietes.

The discharge soon became extremely fetid, and came away in very large quantities, the woman at the same time experi-

encing great local relief. Considerable fever with nocturnal delirium came on, and was attributed to putrid infection by the discharges. The greatest cleanliness was maintained, and warm chlorine lotions were abundantly used. The vagina became very hot and tender, and the belly also very sensitive on pressure. But, on the 6th February, her alarming constitutional symptoms began rapidly to disappear: the discharge had become much less in quantity, and the abdominal tumour could only just be felt above the pubis. Before the 15th blood had entirely disappeared from the discharge, and along with it the fetor; but a copious flow of laudable pus took its place. On the 20th February the tumour was found to have disappeared; only the uterus was fixed, and the surrounding tissues were indurated. She now had an attack of irritable bladder, which was removed under the use of appropriate remedies. It was not till the beginning of April that the purulent discharge ceased. She was thereafter soon dismissed, feeling quite well. Only, examination per vaginam showed that there persisted an indurated state of tissues around the uterus, itself now of natural dimensions.

Peri-Uterine Hæmatocele. — In the two following cases the tumour was comparatively small, and did not, in anatomical relations, resemble the tumour in either of the two preceding sets of cases. I must, however, admit that I am not convinced that the physical characters of these two cases demand their separation from the uterine and retro-uterine kinds. It is quite possible that, if the bulk of the tumour had increased, it would have assumed the condition of a uterine or of a retro-uterine hæmatocele. But, as I cannot dare to guess what might have been its history under these circumstances, I retain it in a class apart. The name, peri-uterine, is appropriate to these cases, on account of their resemblance in situation and relations to the common peri-uterine inflammatory indurations, or the indurations produced by pelvic peritonitis. It is important to remark that the fifth case proves an interesting clinical fact, namely, that severity of symptoms is not in direct relation to amount of effusion. Although the hæmatocele was small in Mrs. H., the symptoms were very urgent. In this case the discharge of fetid gas from the sac is a curious observation.

Case 5.—Mrs. H., æt. thirty-five, had had several children. Her last pregnancy terminated in abortion at the third month, about two years ago. She was at first a patient in a ward of Dr. Gairdner's, but was subsequently transferred to mine.

She had been in bad health for many months, had menstruated too frequently, and suffered feelings of weakness and occasion-

ally of pain in the hypogastrium. For three months before admission she had not menstruated at all, and she had never previously been irregular in this respect. Since the menses ceased, she had observed a slight leucorrhœa, occasionally tinged with blood, but never fetid. About the middle of April, 1862, she was suddenly taken with severe pains in the left hypogastric region, followed by swelling and hardness of the lower belly, also by intensely severe bearing-down pains across the sacrum, which continued in a moderated degree till her admission into the infirmary on the 29th of April. Since the middle of April she has several times required to have her water drawn off by the catheter.

She was exhausted, pallid, and anæmic on admission, and, besides the symptoms just mentioned, complained of pain in defecation, the bowels being very costive. She had pain on pressure in the left hypogastric region, but nothing could be felt by the hand applied externally. She occasionally shivered, frequently perspired profusely, and had occasional attacks of vomiting. On 3rd May she had a very severe attack of sacral pain, and the left hypogastric region became very tender. I was asked to see her, and found a considerable hard swelling on the left and posterior side of the brim of the pelvis, fixing the uterus, and displacing it a little forwards and to the right side. The swelling had very little thickness, measuring from above downwards. It was diagnosed as a pelvic peritonitis, in which effusion of pus would probably soon take place. She menstruated in the middle of May, the flow lasting for three days. Thereafter a purulent discharge began, which lasted for about fourteen days. On 24th of May considerable increase of thickness of the tumour was discovered, and it was easily felt by the hand applied externally. It was punctured by a trocar and canula, and only a little discharge came away through the latter; but very soon after its removal, a gush of brown bloody fluid was passed. On the following day the tumour could not be felt by the hand applied externally, and the patient expressed herself as very greatly relieved. The bloody discharge ceased after two days. After four days it again recommenced. But in spite of this fetid bloody discharge coming away not scantily, the symptoms gradually became again aggravated, and the tumour again increased in bulk. On 14th of June I again inserted Pouteau's trocar and canula into the tumour, and drew off eight ounces of the fetid bloody fluid, closely resembling the discharge. Some fetid gas also escaped through the canula. After this operation the grumous bloody discharge lasted for only four days. The woman now expressed herself as quite recovered, began to go about the ward, and was dismissed cured in the middle of July. An examination per vaginam, made before

her departure, revealed the existence only of a little induration in the site of the former tumour.

Case 6.—Mrs. M., aged 33, sterile, has always menstruated regularly and profusely. On 2nd May 1862, the monthly period began as usual, but, while she was engaged at a washing on the next day, the discharge ceased. In the evening of this day she felt ill, and had much pain in the belly, especially in the left side, which was swollen. The pain grew worse and worse, till she came to the hospital on 27th May.

On admission, the belly is distended, and there is tenderness on pressure in the lower part of the left side, but nothing abnormal can be felt. Her bowels are constipated, but she has no dysuria. Examination per vaginam reveals the uterus fixed in its natural position by a hard tender swelling high in the pelvis, and lying between the womb and rectum, and on the left of the mesial line. Laxative medicines were prescribed. On 3rd June she passed a quantity of blood per rectum, on two occasions. It was at first red, and afterwards brownish. On two or three subsequent days only small quantities of the same were observed in the evacuations. On the 7th June she began to menstruate profusely, and had much uterine pain. The flow lasted for six days. After it ceased, she suffered no further pain; and examination per vaginam made out only a thickening and induration of the tissues in the former site of the bloody tumour, and restored mobility of the uterus.

The remark of Dr. West, that most examples of uterine hæmatocele are connected with some derangement of menstruation, is amply confirmed by the histories of the preceding cases. The most cursory perusal of these reports also shows that the disease may be described as sudden in its supervention, that it produces great agony and often cramplike pain in the stomach, bearing-down pain, and irritation of the bladder; that there is great tenderness in the seat of the effusion, and that the belly generally becomes more or less distended with flatulence. Besides these symptoms, vomiting, generally of bilious character, and constipation are frequent occurrences. In case second, diarrhœa was present. It is natural to expect, as is always observed, that an anæmic condition should be produced when the extravasated blood is large in amount; but besides anæmia, and more or less severe feverish excitement, there is generally no farther peculiar constitutional disturbance.

The disease may be mistaken for ovarian dropsy, fibrous tumour, pelvic inflammatory induration or abscess, pelvic peritonitis, uterine and extra-uterine pregnancy, and retroversion of the gravid uterus. I shall not enter into the details of its diagnosis from these various diseases. Most of them will

suggest themselves to any person ordinary intelligent in the diseases of women. I may, however, remark, that the history, if well made out, offers great assistance in this matter. But even when the history is pretty distinct, it will be often impossible, particularly when the tumour is small, to make a satisfactory diagnosis from pelvic inflammatory induration or abscess, from pelvic peritonitis, and from extra-uterine pregnancy; and fortunately the diagnosis from these diseases is not of very great importance, so far as the practice to be employed is concerned. I would particularly remark that elongation of the uterus is given by Dr. West as a diagnostic indication of extra-uterine pregnancy, and that this statement appears to me to be carefully guarded. No doubt, in extra-uterine pregnancy the uterine cavity will be elongated; but, on the other hand, in the cases recorded above, the uterus was found greatly elongated in every instance where the hæmatocele was large, and in all it contracted with the contraction of the blood sac. In all, this elongation co-existed with a cervix uteri, having none of the conditions of the cervix in pregnancy. In all, a careful examination of the case led to the belief that no form of pregnancy existed; and although in some there was room for suspicion of the existence of pregnancy, in others there was none.

The general treatment of the various distressing symptoms of this disease requires no special remark in this place. I shall only consider briefly the surgical treatment of the tumour. On this subject there is a great divergence of opinions, some believing that it is best, in all cases, to abstain from interfering with the hæmatocele; others advising its being incised or punctured, with a view to its evacuation, at least in some cases. In the sixth case recorded here, the tumour was spontaneously evacuated per rectum, and the occasional occurrence of this termination renders it quite unnecessary in such cases to resort to any surgical interference. In other cases, as in the second here given, the bloody effusion is rapidly absorbed, and the surgeon is happy not to have his skill in operating put to the test. In other cases, as in the second of those here reported, the surgeon may, even if he wished to operate, find no safe access to the tumour: he may find both the vaginal and abdominal aspects of the tumour presenting characters which lead him to estimate highly the danger of operating, and to judge it more prudent to use what is called an expectant treatment. On the vaginal aspect the tumour may be too high, or present too little resistance to the examining finger. On the abdominal aspect he may, in tumours supposed to be extraperitoneal, fear lest he perforate the peritoneum if the tumour is not very large.

But, after all these consideration, I feel sure that it is often good practice to open the sac, and that in many cases, it is the

only good practice. In four of the cases recorded above I have every reason to congratulate myself on the interference resorted to. In all four it gave almost immediate, partial, and gradually increasing relief to the sufferers. In the first case there appeared every reason to expect bursting of the sac and diffusion of the fluid over the whole peritoneum, an accident which has often occurred, and which the opening of the sac tended to avert. In the third and fourth cases the tumour would, judging from the condition of the syruplike blood in the rectovaginal swellings, almost certainly have soon burst spontaneously into the vagina or rectum; and in these cases the operation certainly shortened the patients' sufferings, husbanded their strength, and contributed to their early recovery, and to their safety from the danger of death. In the fifth case the severity of the symptoms and the great slowness of the progress of the case seemed to me urgently to demand the use of any means likely to assuage suffering and remove the disease. And it must be remembered that a case such as the fifth may last for an indefinite length of time. In the case from London, to which, in a former part of this paper I have already referred, the disease had continued for more than a year, and there were no signs whatever of these large tumours offering to point in any direction.

The fifth case affords a good illustration of the necessity of a free opening in some cases. In it the tumour was increasing, while it was at the same time discharging. It was not only increasing in bulk but fetid noxious gas was being evolved within it by decomposition of its contents. In this disease, as in pelvic abscess, the existence of an opening in the sac, and the passage of discharge constantly, afford no absolute security against the increase of the tumour, or against its bursting in a new direction. A free opening for discharge may certainly prevent increase of the size of the tumour, but its freeness will not prevent the contents of the sac penetrating even in more than one new direction, a circumstance of which clinical observation has convinced me.

The first case affords an example of opening the tumour by the ordinary paracentesis abdominis. In it and in case second, this mode of access to the sac was easier and more direct than that per vaginam. In the retro-uterine cases the tumour was opened per vaginam, and in all such cases no other method of operating should be resorted to. A trocar or a guarded bistoury may be used, the operator being careful to wound only in the mesial line, and to avoid injuring any vessel he may feel pulsating. It has been recommened in cases of this description to pass the finger through the artificial opening, in order to break down clots and imaginary dissepiments; but such a proceeding is not possible, and were it possible it would not be advisable. In cases

that are not retro-uterine, and on which operation per vaginam is decided upon, the surgeon should choose for incision or puncture the most prominent part, always taking care to avoid any vessel that can be felt, and not to injnre the bladder or rectum.

Rapid absorption of the effused blood (as happened in case second), is undoubtedly the most desirable termination of a hæmatocele. But it does not often occur when the extravasation is large, and I cannot assign any reason why the histories of hæmatoceles should in this respect be so widely different. Only it appears to me that the difference probably depends greatly on the condition of the extravasated blood. If it becomes dissolved and syruplike, I believe it becomes always mixed with pus, and is almost sure to be discharged and not absorbed. If it remains in the form of clot, it may be absorbed. In case second this persistence in the coagulated condition was rendered probable by the entire absence of fluctuation during its gradual diminution in bulk. The change into the tarry or syrupy condition is probably greatly dependent on the presence of inflammation of the sac, and secretion of pus. Mere bulk is not a sign of necessity for spontaneous or artificial evacuation, as the history of case second shows. But there can be little doubt that in large hæmatoceles absorption is less likely to occur than in smaller tumours. If these remarks have a good foundation, then, in cases where fluctuation can be anywhere felt, or where the dissolution of even a part of the effused blood has taken place, the question, whether evacuation of the contents of the sac will take place or not, has not to be decided; it will assuredly occur, and the surgeon has only to determine whether he will leave the case to nature or interfere, to hasten or direct the progress of the disease.—*Edinburgh Medical Journal, November*, 1862, *p.* 418.

136.—ON PAIN DURING MENSTRUATION.

By Dr. Graily Hewitt, Physician to the British Lying-in Hospital.

Whatever be the cause of the painful sensation experienced during menstruation, certain general rules are applicable as regards the treatment.

The first element in the treatment is *rest* during, and for a short time previous to, the period of the flow. The patient must be directed to remain more or less constantly in the horizontal posture during the period in question. Means are to be taken to ensure the regular and proper action of the digestive organs. The food should be plain and simple; and aperients

are to be administered, if necessary, to produce regular action of the bowels, and prevent congestion and fulness of the pelvic organs.

We are often called upon to prescribe remedies calculated to relieve the pain actually present. When the pain is very severe, opiates may be necessary; and these are most efficacious in the form of enemata. We are generally able, however, to do without opium; ether, of which the best and most efficacious preparation is unquestionably the compound spirit of sulphuric ether of the *Pharmacopœia*, combined or not with camphor, henbane, or sal volatile, one or more of these are medicines very satisfactory in their effects, when given for the purpose of alleviating temporarily the pain present in menstrual retention, or for more simple cases. Cannabis indica is a very valuable medicine in certain cases. An objection to it, stated by Dr. West, is the varying and uncertain strength of the preparations obtainable. Chloroform inhaled, or given internally in the form of chloric ether, is often employed with advantage. Opium, in doses of half to one or two grains, may be necessary in extreme cases. Opium and camphor combined I have frequently found very serviceable. When we have reason to believe that the sufferings of the patient are connected with the presence of a tendency to gout or rheumatism, it will be proper to give colchicum internally, which may be advantageously combined with a little blue-pill, every night or every other night; and saline laxatives twice or thrice a-day.

The warm hip-bath, in which the patient is to remain for half an hour or so, is perhaps the most effectual of all remedies in affording relief from the extreme pain sometimes present, while it is occasionally not less effectual in directly causing the discharge to appear. It is, in fact, both palliative and remedial in its effects.—*British Medical Journal*, *June* 28, 1862, *p.* 681.

137.—ON THE ABLATION OF CANCEROUS GROWTHS.

By Dr. James Arnott.

The principal objection to the removal of cancerous growths by the knife or caustic is—as has been ably pointed out by Mr. Paget, in a lecture recently published in the Medical Times and Gazette,—the danger of the operation. If this danger could be obviated, there would often be great advantage from the operation; the patient's sufferings might be mitigated, and his life might be prolonged. But a mortality of ten per cent. from the excision of the growth, according to the statistics of Mr. Paget, or sixteen per cent., according to those of M. Lebert, is too

great a risk to be incurred, unless this chance of prolongation should, from the nature of the individual case, be very considerable.

The danger from caustic, however, is admitted to be much less than that from the knife; but the pain it produces is severe and often intolerable. What danger accompanies its use, mostly proceeds from the exhaustion caused by this agony. Mr. Paget states that there exists no effectual method of preventing the pain from caustic; but this statement only shows that he is unacquainted with the anæsthetic virtues of intense cold, used in combination with caustic. He has probably only witnessed its imperfect application. His acquaintance, however, with local anæsthesia, from the short application of cold in operations by the knife, will enable him to judge what the effect must be, in operations with caustic, of the much stronger and more protracted congelation which the surgeon is then able to avail himself of. In the Medical Times and Gazette for 1858, I inserted a detailed report of a case of cancer in the breast, in which the pain arising from nitric acid and chloride of zinc was thus completely prevented. As the patient was in the Middlesex Hospital, the mode of proceeding was witnessed by many surgeons. Mr. Langston Parker, in his publication on the treatment of cancer by caustic, has mentioned the beneficial effects of a much less perfect anæsthetic apparatus constructed on the same principle.

In the removal of cancer, congelation not only prevents the intense suffering that would accompany the action of caustic, but, when much prolonged, it furthers this action by adding its own destructive powers. It will alone destroy the growth. The objection to its being employed alone is the length of time required, and the difficulty or trouble of the proceeding; but surely, if it has superior advantages in eradicating the disease, this objection should have little weight. Such a mode of destroying the morbid part is unaccompanied with the irritation excited by caustic, and the application itself is a most powerful preventive of inflammation. Congelation used for this purpose must be produced by the strongest frigorifics, and, in order that it may extend to a sufficient depth, must be employed simultaneously with pressure. This can be done by filling, with the semi-fluid freezing mixture, a very deep gutta-percha cup modelled to the part.

Congelation, properly applied, and not pushed to the degree required for the destruction of a cancerous growth, will at least always remove or mitigate pain, check or retard the progress of the disease, or convert an acute into a chronic affection. If improperly applied, the disease may be aggravated instead of being relieved or arrested. Were effectual congelation in cancer a much more troublesome proceeding than it is, it would surely

be better to make trial of a method of so much promise, than persist in a routine which long experience has proved to be of so little avail—a routine manifesting the hopelessness of the surgeon, and more frequently aiming at present ease and euthanasia than the prolongation of life.—*Medical Times and Gazette, Oct.* 25, 1862, *p.* 433.

138.—ON SYPHILITIC AFFECTIONS OF INTERNAL ORGANS.

By Dr. Wilks, Physician to Guy's Hospital.

[This subject has been occasionally brought by Dr. Wilks before the notice of the profession, but has "been received with more than scepticism." There is, however, nothing but what is extremely probable in these views; the novelty being simply this, that a more rigid pathological research has discovered that other tissues than those originally supposed might be affected by syphilis, or rather, that the internal organs might be affected in a similar manner to the external.]

The statement regarding constitutional syphilis is this:—there is a disposition to the formation of a low organised lymph in various parts of the body, and which, in the course of time, if not absorbed, remains as a deposit of hard, fibrous tissue. I believe that it is in the stage which is styled "the secondary syphilis" that this occurs, although, of course, if the deposit be dried up into an insoluble mass, it would remain for years, and be discovered in those who had passed into what is called "tertiary syphilis," or be found in those who had actually recovered. Surgeons have varied much in their opinion as to the symptoms and changes which should be classified under secondary, and which under tertiary; but as regards the present question, that of the deposit of which I am now speaking, I should say it was in the secondary stage, and at an early period of the syphilitic taint, and not at a remoter or in the cachectic condition, that it occurs, although, of course, the deposits may remain and be found at any later period. I should regard a node on the bone as amongst the secondary effects; whereas, if this node softened, and the bone became carious, this would be an ulterior result. So certain rashes and tubercles in the skin would be secondary, and pustules and sores tertiary. In thinking of this subject from a therapeutical point of view, I have long been under the impression that the value of absorbent remedies, as mercury and iodide of potassium, is in proportion to the formation of such low organisable material, and that these remedies are not curative in relation to the syphilitic poison itself: thus the failure of the iodide in secondary syphilis attended only by simple rashes on the skin, but its efficacy

where pains in the bones exist, and other symptoms indicative of an inflammation of the fibrous tissues, with a tendency to the production of lymph.

I say, then, that in constitutional syphilis there is a disposition to the pouring-out of lymph of a low quality in various parts of the body, and that probably no organ of the body is exempt, its seat being probably the fibrous or areolar structures. I have said that the surgeon had recognised this disposition to the production of lymph in the chancre itself; also, unless the disease was cured, or, according to modern theories, was of a peculiar character, that the constitution might become affected, and thus the skin be involved, the bones present nodes, lymph might also be seen exuding on the iris—that condylomata might appear about the genital organs, nodules in the tongue and other muscles. We now also say, further experience has proved that nodules of a similar character which form in the muscles, the larynx, or as nodes on the bone, may originate in the solid organs of the body; and it is in this deposition of a low organisable lymph that we would place the peculiarity of the affection. Thus, in syphilitic ulceration of the larynx or pharynx this peculiarity is observed; and in the case of the former there is sometimes merely a nodule, without any ulceration whatever.

I will now go through the organs *seriatim*, and in doing so I need only allude to the deposition of lymph on the iris, to the condylomata and tubercles on the skin, and to the nodes on the bones. In the last case we find a low organisable lymph poured out beneath the periosteum, which has not much disposition to soften, and is readily absorbed. I may here say that, although no one has ever doubted that such nodes result from syphilis, yet it does not follow that the deposit has such peculiarities that, when examined microscopically, it would be regarded necessarily as syphilitic; and yet such argument is constantly used in respect to similar deposits in the internal organs. For when it is maintained that these are so constantly observed that no doubt can exist as to their cause, an objection has been made, that no peculiarities of structure can be found in them necessarily indicative of a syphilitic origin. On the same argument, I say, we might doubt such a disease as syphilitic iritis or periosteal nodes, because the lymph presents no peculiarities.

In the muscles such fibrous deposits have long been recognised, especially in the tongue. They are peculiar in not growing from a centre like other tumours, but rather infiltrations in the tissue; thus they are not perfectly circumscribed, but are found mixed up with the muscular tissue. I have lately had under my care two cases of children who had several large nodules in the muscles of the limbs, and which were no doubt syphilitic.

In the lymphatic glands the enlargement from fibrous deposition is well known, so that you are in the habit of daily witnessing the surgeon feel the neck for enlarged glands in cases of suspected syphilis.

Ulceration of the pharynx you know is very common, but you will observe the thickening of the edges of the ulcer, and even the dense fibrous structure at its base.

In the larynx you will observe the same fact, and also, without any ulceration, a simple fibrous deposit. In the specimen which I now show you, the glottis is entirely obstructed by a hard nodule of the same character as a node in the bone, and of a similar kind to the deposits in the liver of the patient whence it came.

As regards the internal organs, the liver is the one which was first suspected to be affected. Here we find distinct, hard, fibrous nodules in its substance. These, if been long present, are tolerably circumscribed, but cannot be entirely separated from the surrounding tissue. In some cases, where a partial absorption has taken place, the tissue is puckered up, and a cicatriform appearance is produced. Thus, in these several specimens of liver you will see all these appearances. Here are some with tolerably circumscribed nodules, others sending out processes, and some where partial absorption has taken place and cicatrices left; in some, more diffused masses, which are adherent to the diaphragm.

Some writers, as Gubler, have described a peculiar induration of the liver as found in children who have died of syphilis. From their description it would appear as if an albuminous product had been poured out, causing an enlargement and induration of the organ. Although I have seen the deposits of which I speak in the livers of children who have had hereditary syphilis, I have not yet met with this enlargement or induration of the organ. From the description given, it is scarcely distinguishable from the lardaceous or waxy change; and as this results from syphilitic cachexia, I have thought whether this may not be the condition referred to.

I have here two specimens of spleen, which came from syphilitic subjects, in whom the liver contained the deposit already spoken of, and therefore, have no doubt that the similar deposit therein seen is of an identical character.

In the heart, as well as in other muscles, the deposit may no doubt occur. In this organ which I hold in my hand you will see a mass of fibre-tissue in the septum, and quite unconnected with the surface of the heart, as is usually the case when such fibrous tissue is the result of an ordinary inflammatory process. Here the adventitious fibre is incorporated with the muscular

tissue, as when occurring in other parts of the body. I think, therefore, it highly probable that this is a specimen of syphilitic disease.

In the lungs, probably, also the same occurs, although, from the softening changes which rapidly take place in these organs, it may be constantly overlooked, and the case be regarded as one simply of phthisis. Occasionally, you may find the deposit in an early stage, as in this lung which I now have in my hand. This came from a young man who had syphilitic deposits in the liver; and the disease is seen to consist of two rounded masses in the substance of the lung, quite circumscribed and firm, and presenting an appearance quite different from the ordinary tubercular or inflammatory products. Moreover, the microscope showed it to consist of a fibre-tissue, instead of one made up of cells.

In the testes such deposits are very common. Here are several specimens, showing distinct nodules, also fibrous tissue pervading the organ in a more irregular manner; also other specimens where the organ is quite destroyed and indurated by the new product. You know it has been a question with surgeons as to the frequency or common occurrence of testitis as a part of syphilis, and I have heard very opposite opinions expressed about it; but the subject of acute inflammation is not the one of which we are now speaking. I allude to a slow and painless production of a low organisable lymph in the substance of the organ, and which, probably, would not come before the notice of the surgeon whilst the patient was under treatment for any of the more severe consequences of the disease.

As regards the nervous system much more extended observation is required in order to discover the precise seat in which the deposit occurs. As regards the nerves, there can be no doubt that such deposit is constantly occurring in them. We had a patient who had long suffered from syphilis die with a tumour of the facial nerve, which corresponded in all particulars with the syphilitic; also another, who had long suffered from pain in the leg, who had a deposition of same kind in the sciatic nerve; she also had a similar material thrown out in lung and liver. These remarkable specimens of nerves in this bottle, where every nerve in the body is covered with fibrous nodules, the cause is, in all probability, syphilitic, as the subject was a prostitute who had laboured under the disease.

The most important cases are those where the brain itself is affected; those cases where cerebral symptoms have long existed, and especially epilepsy. In such we find a quantity of tough, yellow, fibrous tissue uniting together the surface of the brain

with the adjacent membrane, and this again adherent to the bone. The cortical structure of the brain at the affected spot is often partly destroyed, and the adventitious material occupies its place. The question has still to be solved as to what structure is primarily affected. Many have given the authority of their name to the opinion that the disease commences first in the bone, but this is simply for the reason that the osseous system is that which has so long been recognised as liable to be affected; but since we now know that other structures may be similarly attacked, we are prepared to look for its commencement in other parts, and even in the brain structure itself. As regards the latter position, however, I do not know of any recorded case where a tumour or deposit of undoubted syphilitic character has been discovered, although, from cases continually before us, and which recover by appropriate remedies, a supposition of the occurrence is constantly suggested. The cases which are so frequently met with are those just named, where the deposit involves both sides of the dura mater, and includes in it the bone on one side and the brain on the other. The probabilities are in favour of its occurring in the dura mater just as it arises in the periosteum, on the exterior of the cranium.

Probably many other parts of the body may be affected in constitutional syphilis; and I have long thought that the coats of the blood-vessels undergo a change, whereby they become thickened, and a deposition occurs on the interior, with the ordinary ulterior results.

I might also have said, when speaking of the pharynx, that the ulceration may extend to the upper part of the œsophagus, and thus, as in this specimen which I hold in my hand, of stricture of this tube, the contraction I believe to be due to a cicatrisation of a syphilitic ulcer.

Placenta.—That the placenta may be affected in the manner described, and be a cause of abortion, is an opinion which I heard expressed in this hospital long before anything was known of the subject of which I am speaking. The late Mr. Wilkinson King collected several cases of abortion connected with a change in the placenta, and which he believed to be due to syphilis.

As an ulterior effect in syphilitic cachexia, especially when the bones are affected, the viscera undergo the change known as the lardaceous or waxy.—*Medical Times and Gazette, Oct.* 25, 1862, *p.* 434.

139.—ARTIFICIAL TEETH: EFFECT OF "RED VULCANITE" ON THE HEALTH.

[A correspondent of the Lancet calls attention to the effects of "red vulcanite," a material now extensively employed by dentists as the basis of artificial teeth. He says:]

I have at the present time a patient under my care, who was supplied some nine months since with a set of teeth for the upper jaw, based on "red vulcanite," who has been declining in health and spirits ever since he has worn them! From being a strong, healthy, muscular, and robust man, he has been losing flesh rapidly, with loss of appetite, sickness, nausea, flatulence, gastric irritation, fetid breath, vertigo, diarrhœa, &c., apparently without any assignable cause. Seeing that he wore artificial teeth, I begged to be allowed to look at them, and it struck me whether there might not be something prejudicial in the *colouring* matter of the "vulcanite" which was keeping up his somewhat anomalous symptoms. I requested him to leave them off for a month (much against his inclination, as he never thought about his teeth having anything to do with his indisposition), and a marked improvement in all his symptoms followed. He has since resumed them, with a like result as before.

[Dr. H. C. Roods, in a letter to the Lancet on the same subject, remarks:]

I think the question of the influence of the colouring matter (bisulphuret of mercury) of vulcanite upon health has previously been referred to in the Lancet; and in consequence thereof I, the latter end of last year, spoke to the dentist who was preparing some artificial teeth for a relative of mine on the subject, who stated that he had never met with a case in which any ill effects had followed the use of the material. My relative has worn the teeth constantly since about Christmas. Early in the spring she complained of diarrhœa, or rather of an irritable state of the bowels; soon after taking food the bowels began to rumble, and free action followed, as if from strong physic, to use her own words. Catechu, with compound chalk and opium, —her usual remedy in case of occasional diarrhœa,—did not effectually restrain this unusual irritability. It checked it, and from time to time she has been for a short period better, and has hoped it was passing off; still it persists, and, although very careful in diet, the least thing disturbs her, and I believe she has not passed a week for six months past without being obliged to take astringents; and I cannot help thinking the vulcanite is the disturbing agent. I have thought of suggesting the suspension of the use of the teeth, and shall now do so. The party heretofore has enjoyed good health, and I am not aware of any other cause of the ailment. I may add that mercurials, previously taken remediably, even in small doses greatly irritated the bowels of this lady.

Although it appears improbable that a mercurial preparation combined with an impermeable substance like vulcanite should escape therefrom in sufficient quantity to affect the system, still

facts may prove stronger than probabilities in the matter; and although many persons wear the material without prejudice and with great satisfaction, occasionally a party peculiarly susceptible to the influence of mercury may possibly suffer from the colouring matter; and, if so it would be desirable to select some other than a mercurial pigment for tinting the vulcanite, or coraline, as it is termed.—*Lancet, Sept.* 13 *and* 27, 1862, *pp.* 301, 352.

140.—DENTAL CARIES.

A strong solution of tannin in ether has lately been employed in dental caries, where the dentine is very sensitive, but without exposure of pulp. Mr. Bartlett has recommended a solution of tannin in the ordinary camphorated spirits of wine as being preferable in such cases. In applying creasote, the latter should be mixed with some collodion, as advised by M. Stanislas Martin. By this means a gelatinous consistency is obtained in the agent employed, which, forming a varnish over any orifice in the carious tooth, prevents the access of air to the sensitive parts.—*Lancet, July* 5, 1862, *p.* 27.

NOTICES OF NEW WORKS

141.—*On Uterine and Ovarian Inflammation, and on the Physiology and Diseases of Menstruation.* By Edward John Tilt, M.D. Third edition, 8vo. pp. 470. — *London*, Churchill, 1862.

[This seems rather a large volume, yet larger volumes have been written on far less important subjects. It will be indispensable to those who wish to have an accurate knowledge of uterine disease. We must endeavour in these reviews chiefly to instruct our readers, and we shall in preference choose subjects which have not been so fully illustrated in our previous volumes. We select the subject of Acute Ovaritis. With regard to the causes of the disease, Dr. Tilt says that]

Out of my twenty-six cases of idiopathic ovarian abscess, twenty were married or lived connubially, five of the twenty were prostitutes; that all the patients belonged to the reproductive periods of life, eleven being under twenty-five; that the menstrual flow had been for some months more painful in two, more irregular in eleven, and absent in three out of the twenty-six; that the disease originated during menstruation in six cases,

and in three under the sudden influence of cold. Once it began soon after a kick on the groin, once after a fall down stairs on the subsidence of the menstrual flow. In four cases it was the immediate consequence of marriage, and in three out of the twenty-six the ovarian abscess seemed to arise in chronic uterine inflammation. Gonorrhœa was the cause in seven cases, in one of which the disease could be traced to cohabitation at a menstrual period; in two to the suppression of the discharge, one woman suddenly suppressing the gonorrhœal flow by astringent injections, the other by taking a full dose of copaiba.

Ovaritis has this in common with orchitis, that occasionally both may occur in connection with variola. (p. 398.)

[Its pathology is as follows:—]

If the inflammatory process has been sufficiently intense, or has not been actively treated, the ovaria in the course of a few days swell to a considerable bulk; and if, by chance, an opportunity be afforded of examining them, the peritoneal covering of the ovaria may be found acutely inflamed, red, vascular, the lymphatics full of pus, and the surface covered with false membranes, or imbedded in lymph, as may be seen in the beautiful delineations of Carswell and Cruveilhier. The ovaria themselves are swollen to three or four times their usual size, are pulpy, of a bright red colour, very vascular, and with a collection of pus in some portions of their tissue.

These small cavities may communicate, or the central part of the ovary may be broken, nothing being left but the ovarian shell, filled with pus; and if well protected by false membranes, the pus may remain there, without giving signs of its existence. (p. 393.)

[The symptoms produced are, pain of a very severe character, and an increase in the natural heat of the pelvis. The vagina is hot and dry. The tumour produced by the enlarged organ may or may not press on the uterus and produce displacement. Dysuria is frequently produced, and it is sometimes necessary to depress the tumour in order to pass the catheter. A rectal examination is often of use, and occasionally fluctuation may be distinctly detected. When the tumour still further increases it presses on the rectum, and the patient is troubled with more constant constipation than before, and with tenesmus; and occasionally the pressure is so great that the fæces are moulded into the form of a riband. Sometimes constipation is so obstinate that the case is considered to be one of ilius. Rokitansky observes:]

"In two instances with which I am familiar, the pressure of the prolapsed ovary, loaded with purulent fluid, produced in each

case a fatal form of ileus. In one of these the tumour filled the rectum; neither bougie nor injection could be conveyed beyond it, and such was its apparent solidity, that I did not for a moment contemplate puncturing. But the deception was fatal to the patient." (p. 401.)

[The general symptoms are such as might be expected in an acute internal inflammation. The abscess may burst spontaneously through the skin, into the vagina, intestine, bladder, or peritoneum; the vaginal opening being the most frequent and felicitous. In the treatment of the affection we shall pass over local and general bleeding, mercurial inunction, and other remedies, and pass on to the subject of operative interference with the abscess.]

Even now practitioners urge that it is well to delay opening ovarian abscesses as long as possible, because the pus is so well limited, that it may remain for years without finding its way into other organs, because one should never despair of Nature's power of absorption; evident collections of pus having been repeatedly known to vanish completely as caustic penetrated deeper and deeper, and because these abscesses will not be dictated to, inasmuch as they will sometimes perversely burst of their own accord after having been opened in the most judiciously chosen spot. On the other side, it is well observed, that if left to itself, the collection of pus continually predisposes the patient to peritonitis, by extension of the inflammation, as well as by the continued presence of a large quantity of pus in the pelvis; in which case there is a greater chance of its perforating the peritoneum, and causing a fatal termination. Even when the perforation takes place through the skin or the mucous membrane, it will seldom do so until too much mischief has occurred by extensive inflammation in the adjoining organs and cellular tissue, for the constitution to be benefitted by the result; while at the same time hectic fever, and subsequently protracted suppuration and permanent fistula, reduce the patient to a state of marasmus. It often happens, when the skin is opened, that the spontaneous bursting of the abscess is not effected in the most favourable situation for voiding the pus, and thus a vitiated fluid is allowed to remain in the *cul-de-sac*, causing inflammation of the surface of the cyst, and its subsequent perforation so as to find a freer vent for its secretions. Should the abscess communicate with the bladder or the intestines, the contents of these viscera may penetrate into the ovarian abscess, causing death.

If, instead of leaving the opening of pelvic tumours to Nature, the surgeon, so soon as fluctuation becomes manifest, opens them with all due precaution at the place where they point, and

whence, in general, the pus can easily flow, the patient is immediately relieved from the pain arising from the inflammatory distension of the cavity, and from many other dangers already enumerated. Loss of strength being thus prevented, the patient has a better chance of recovery; for it stands to reason that the small incision thus made has a greater tendency to heal, than the rugged lips of a spontaneous and ulcerated opening. Chronic inflammation of the neck of the womb, of the vagina, the rectum, and the bladder, the results of the continual passage of pus on the mucous membranes of these parts, are also generally avoided by this artificial opening; no doubt from the tumour collapsing, its sides speedily adhere, and thus heal without fistula. By opening these tumours in that portion of their extent accessible to the surgeon, there is also the advantage of being able to inject liquids into their cavity, in case it be necessary to remove fœtid secretions. (p. 429.)

In the first place, to avoid dangerous accidents, it is necessary, before operating, to bear fully in mind the relations of the vagina, the rectum, the bladder, the mode of their connexion, and the disposition of the peritoneum in the pelvis. It is well known that the peritoneum covers a quarter, or sometimes even a third, of the posterior portion of the vagina, being deflected into what is called the recto-vaginal space. This disposition of the the serous membrane would often seem to forbid the opening of vagina by an incision, or, indeed, by any other means; but when a tumour exists in the cellular tissue of the pelvis, it pushes up this covering. In fact, this occurs every day when the bladder is distended. The bladder then rises above the symphysis pubis, lifting up the peritoneum, which it drags with it; and thus allows of the possibility of the high operation for the stone, or of puncture above the pubis. As a similar displacement of the peritoneum occurs whenever a tumour is situated behind the vagina, it is possible to perform an operation on all the posterior portion of this canal without penetrating into the peritoneal cavity. The instances are very rare, where we are not sure of the position of the peritoneum with regard to the tumour; for whenever the latter is very prominent, so as to seem to be one with the vagina, it may fairly be inferred that it is sub-peritoneal; or if it be intra-peritoneal, that adhesions exist between it and the serous lining of the recto-vaginal space. Assurance is made doubly sure, if, on percussing the tumour through the vagina, no sensation similar to that of *ballottement* is perceived; and if, in varying the posture of the patient, the relative positions of the vagina and tumour remain the same. Before performing the operation, it is advisable to ascertain the exact position of the uterine arteries, for Dr. Bourdon has sometimes, in cases of pelvic tumour, felt the pulsation of one of several

arteries in the neck of the uterus; and Huguier affirms that towards the union of the upper third with the remainder of its length, it is constantly encircled by an artery as big as a crow-quill.

To perform the operation, Recamier employed an instrument somewhat similar to a pharyngotomus, for it consists of a convex bistoury, the point and edge of which may be covered by a silver blade of the same shape, but larger. This silver shield slides on the back of the bistoury, and terminates at the handle, in a prolongation, by means of which the point and edge of the bistoury may be unmasked to any extent the operator may desire. The patient should be placed on her back, with the thighs separated and flexed, while an assistant presses the abdomen with his hands from above downwards. Recamier used to introduce the index of the left hand into the vagina, and having determined upon the point for operating, he then slid the instrument upon the finger, which had not been withdrawn from the vagina. During this time the blade of the bistoury was protected by the silver sheath, but when he had penetrated to the proper depth, he unsheathed it, and plunged the extremity into the tumour, until he felt something give way, and saw the liquid to which the incision had given vent. This wound, in the shape of a button-hole, was made vertically, to avoid wounding the uterine arteries. The instrument was then again sheathed, and withdrawn with the same precaution, the finger giving all necessary information concerning the extent of the incision, and the thickness and resistance of the parietes of the tumour. If the incision were not found sufficiently extensive, then a probe-pointed bistoury was conducted into the vagina, with its flat side laid on the anterior aspect of the finger, when the incision was extended.

Recamier's instrument is far from being indispensable; for an ordinary straight bistoury, conducted with due care, and of which a part is carefully protected, may be used. It is of importance not to plunge the bistoury too deeply into the tumour, for fear of transfixing it, and wounding some adjacent organ. When the incision has been made through the posterior portion of the vagina, it is prudent to introduce the finger into the rectum, so as to ascertain before prolonging it, how far distant the inferior angle of the wound is from the intestine. When the tumour is found to be distended with a thick viscous matter having no disposition to leave the cavity, it is not well to inject a sufficient quantity of tepid water into the cyst, to soften and eject its contents. In all instances the pressure on the abdomen is to be carefully continued by graduated compresses, applied to the scrobiculus cordis under the tight body-bandage, by which means the abdominal viscera are forced down. (p. 434).

[These abscesses may be opened by the surgeon also through the rectum or the abdominal parietes, but the vaginal opening

must always be preferred if possible. We think the previous extracts give a fair idea of the work, which is well and agreeably written.]

142.—*Lectures on the Distinctive Characters, Pathology, and Treatment of Continued Fevers.* By ALEXANDER TWEEDIE, M.D., F.R.S., Consulting Physician to the London Fever Hospital. 8vo., pp. 301.—*London*, Churchill, 1862.

[It is almost needless to state that Dr. Tweedie is a powerful advocate for the distinction between typhus and enteric (typhoid) fevers. His views on this subject have been set forth in an able article at p. 1 of our 41st volume, and another article on the treatment of typhus fever will be found at p. 7 of the 42nd volume of the *Retrospect*. We here subjoin a short extract on the management of the sick room in cases of fever. We will merely add that the book is well written, and perfect in itself, and from the great experience of its author must always be a standard work.]

Next let me say a few words on the management of the sick chamber—a point of no inconsiderable importance, though too often overlooked, and closely connected with the comfort of the invalid, and often with the issue of the case.

The first consideration should be the selection of a properly qualified nurse. The value of the services of one accustomed to fever cases can scarcely be over-estimated, as, besides capacity for receiving general directions from the medical attendant, there are numerous details that must be left to her discretion, and which can only be satisfactorily undertaken by a person of judgment and experience, and who has been well trained for such duties. In severe cases, a nurse for day and another for night duty is indispensable.

We shall presume that the apartment is as large as is necessary for the requirements of the patient. The ventilation as well as the temperature of the room should be attended to. The former may be effected, not by keeping the window constantly open, often regardless of season or weather, but by allowing a current of fresh air to pass through the room occasionally, and then closing it. The temperature should be under 60°, though sometimes in the summer and autumn months, it may be difficult to obtain this limit. Those who have had much experience of the management of fever among the poorer classes are aware of the rapidly favourable change in the symptoms, after removal from ill ventilated and crowded dwellings to the spacious wards of an hospital. The whole complexion of the disease, indeed, is often improved in a few hours.

The bed and body linen of the patient should be frequently changed, and the soiled linen removed at once from the sick

room and immersed in cold water. The skin should be sponged with cold, or in winter with tepid water, to which a small portion of vinegar is added, once a day, or more frequently if there be irregular accessions of feverish heat. Sometimes it is sufficient to sponge the palms of the hands, an operation always grateful to the patient.

The bed on which the patient is placed should be of moderate size, and furnished with a soft hair mattress; and if the room be of sufficient dimensions to contain two small beds, the comfort of the invalid will be promoted by occupying one during the day, and the other in the night. This plan is indispensable in the more severe cases, and more especially so, when the evacuations are passed unconsciously. The room should be kept perfectly quiet, the light subdued, and only the attending nurse, and an occasional judicious visitor, when sanctioned by the medical attendant, allowed to have access. The visits of such persons should be short. (p. 220.)

143.—*Mentone, the Riviera, Corsica and Biarritz as Winter Climates.* By J. Henry Bennet, M.D. 8vo., pp. 288.—*London,* Churchill, 1862.

[We must acknowledge that we have perused this book with such pleasure that we had quite a feeling of regret when we arrived at the conclusion. Now that Mentone is becoming a place of winter resort for invalids it is well for every medical man to be informed as to the general character of its climate during that season. We give a few short extracts for this purpose.]

Owing to the complete protection from the west, north-west, north, and north-east winds, and owing to the reflection of the sun's rays from the sides of the naked limestone mountains which form the amphitheatre, the winter climate of Mentone is is rather warmer than that of Nice—warmer, indeed, than that of any part of the northern or central regions of Italy. (p. 9.)

During the three winters that I have passed at Mentone, living in the inner or eastern bay, I have never seen a fog, day or night, morning or evening. Generally speaking, the sky has been clear, and the sun shining in the heavens like a globe of fire. During the first winter, there were seldom any clouds in the sky, except during the rainy days above described. In the second, the wind was oftener in a southern quarter, and days when the sky was partially covered, without rain, were more numerous. But even on these days the sun was always seen and its power felt. So powerful are its rays generally, that even in December or January, it is disagreeable to walk without a lined parasol, as in the East generally. (p. 67.)

Owing to the great power of the sun, the freedom from fog, the slight amount of rain, and the dry, rocky character of the soil, the air is usually very dry. So much is this the case, that wet or damp linen dries in the open air, out of the sun, in a very short time, at any period of the winter, except when it rains, or when the sky is obscured. In January of the year 1861, I sat out of doors reading for two hours every afternoon, from the 3rd of January until the end of the month. I merely chose a spot sheltered from the wind, at the foot of an olive-tree, and exposed to the sun, from which I was, however, always obliged to screen myself by the lined parasol. Without this precaution the position would have been quite untenable. A thermometer in the shade near me marked 59° to 62°. At my feet, and around me, were always many insects, attracted by masses of wild thyme in full bloom. (p. 68.)

It will be perceived that the characteristics of the climate of Mentone, as evidenced during the three last winters—unusually severe ones—are the following: the absence of frost; the absence of fogs; the paucity of rainy days; the clearness of the sky; the heat and brilliancy of the sun when it does not rain; a rather cool or chilly night temperature; a bracing coolness of the atmosphere throughout the winter out of the sun's rays. When, on the contrary, the sun is obscured by clouds, and rain falls, there is as miserable and chilly a state of things as in a drizzling November day in England. As, however, rain only falls on a small number of days, and then often not during the whole day, and as the other days are uniformly bright, clear, and sunshiny, five days out of six, throughout the winter, exercise in the open air can be prudently taken, from ten until four or five, with both satisfaction and benefit. (p. 73).

The results of these three winters' residence have been, on the whole, much more favourable than I could have expected from my previous experience of consumptive disease in England. Those who were in the early or even secondary stages of the disease, and had vitality and constitutional stamina left, mostly did well. I have seen in many young persons well marked, crude tubercular deposits disappear, gradually absorbed. In various cases of accidental phthisis in middle-aged, over-worked men, the amelioration has been still more apparent. I have seen well-marked cavities become partly or entirely cicatrized, and the constitutional symptoms gradually subside; the general health and strength steadily improving.

Those who are in the later stages of the disease, on the contrary, appear to derive but little benefit from the change, although I have met with some exceptions to this rule. The malady generally seems to progress slowly but steadily. (p. 103.)

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